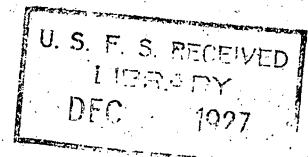


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MANUAL OF  
INSTRUCTIONS FOR THE APPRAISAL OF  
FOREST LAND

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ACQUISITION OF LANDS UNDER THE WEEKS LAW  
U. S. FOREST SERVICE

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Revised March, 1917.

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## Valuation of Forest Land

The only value to be recognized in the appraisal of lands is the exchange, market or sale value of the property. In the case of timbered lands the exchange price is based chiefly on the value of the merchantable timber. The Government appraisal should not be based on either the cost value or the investment value of the property.

The market or exchange value is what the property would sell for in the open market, the seller being under no compulsion to sell and the purchaser not being forced to buy.

The cost value is the original cost to the owner plus the carrying charges and improvements.

The investment value is the capitalized value based on the probability of permanent returns.

## The Soil

The value of the soil in the case of any tract depends primarily upon the returns obtainable from its most profitable use. This may be timber production, pasture, cultivation, some combination such as timber production with limited grazing, or any other combination of the above, together with minor uses, such as hunting and fishing. The physical characteristics of the soil, such as depth, fertility, moisture, character of surface, slope, altitude and exposure affect its productive capacity;

while its accessibility, upon which depends the marketability of products and ease of development, influences its value.

The amount of young growth, immature timber, or mature timber of a temporarily unmerchantable character, are recognizable but indefinite elements of value. It is best to make allowance for them in the valuation of the forest soils.

No factor, such as general recreational value or desirability for watershed protection, is to be considered except in so far as it actually affects the exchange value of the property in the general market. On the other hand, factors which have a distinct effect on market values, such as local demand for small patches of grazing or cultivatable land, must be given full weight.

Undeveloped water power and minerals of problematical value, if considered at all, should be included with the soil value on a very conservative basis. Valuable power and mineral rights will not ordinarily be purchased.

In making comparisons with local sales of cut-over lands, it should be borne in mind that the length of time required to consummate a Government purchase in comparison with a private transaction has a slight effect upon prices which must be recognized. On the other hand, in appraising the soil value of lands which the Government is proposing to buy with the timber reserved for a term of years, it must be considered that the full use of the soil will not be obtained until the timber is cut, and consequently the present value of the soil is not as great as that of similar land now in a cut-over state.



### Improvements

Such improvements as are of use in connection with the administration and development of the forest should be appraised at their reasonable sale value. Minor improvements such as fencing and small buildings which must be taken in connection with small patches of agricultural land should not be given a separate value unless of use for a ranger station or other administrative purpose, but should be included with the soil value. More important improvements should be appraised.

### Timber

The stumpage value of the timber should be determined in the following manner: The amount of grades in the saw timber should be ascertained by careful examination of the timber, checked when possible by the study of the grade yield of a nearby mill. The f.o.b. value of small timber and other products should be determined at the nearest shipping point based on delivery to a general consuming market, unless a more profitable local market can be obtained.

The cost of conversion should be ascertained by determining for well defined operating units the cost of development. This should embrace cost of improvements, carrying charges, other overhead charges, depreciation, logging and milling costs, and earnings on the investment or profits. The difference between selling value of a product and the cost of conversion gives the

stumpage value. This should be confirmed whenever possible by current local sale values.

The annual rate per cent of earnings which should be allowed on the investment should lie between 20 per cent gross as a minimum for a long time investment with small hazard and 50 per cent for a shorter term investment with a higher hazard. The earnings allowed should include interest, and, as a rule, that portion of the carrying charges which will not be met by the appreciation in the value of the stumpage. In portable mill operations due regard is to be given to the time of the operation, the size of the operation, and the value of the services of the operator.

Neither unmerchantable species, nor trees of merchantable species which are inaccessible under present conditions of costs and markets shall receive a positive stumpage value, but shall be considered in connection with young growth in the soil value. If included in the estimate they should be recorded separately and the condition carefully noted.

Logs which contain such low grade timber that they cannot be profitably marketed at present should be excluded from the estimate in order that value and volume may have the same basis.

#### Preliminary Data

A preliminary examination is always desirable except in the case of small tracts where the conditions are well known. The Area Chief or chief of party can best make such an examination, obtaining all the information necessary to show whether it

is desirable to make a detailed appraisal. A study of the outline\* for preliminary examinations will show the points to be considered, chief among which in addition to values are conflicts of ownership, boundary locations, and timber or mineral contracts, relation to acquired lands or other tracts, and whether within the area. All features affecting the desirability of the tract for purchase should be considered.

A complete survey of the boundary lines of a tract is not necessary for the making of a detailed timber estimate, but the best data available should be furnished by the owner. Where no map is furnished the metes and bounds should be supplied, if possible, and in any case the owner or his representative should indicate on the ground the corners and lines. Sometimes a partial or preliminary survey must be made in order to serve as a guide for the valuation survey crews.

#### General Methods

Ordinarily the strip method of volume estimate and mapping will be used. The strips should start from an accurately located and measured base line and run at right angles to the general trend of the main topographic features. They should when possible run on a cardinal or semicardinal point of the compass to facilitate accurate sighting.

The usual plan of combining the map making with timber estimating should be followed. For methods and standards, reference should be made to the manual entitled "National Forest

Surveys and Maps." For all tracts estimated on a 10 per cent or higher basis, a Standard II map should be made. For other tracts which are "stripped," a Standard III map is suitable. In both cases, however, the preliminary control, if not already established, will have to be omitted for the reason that the use of Acquisition funds for such work is not justified.

In general, where land is heavily cut over, strip surveys are not necessary. It is necessary, however, to locate accurately the cut-over or burned portions by tying them into the outside lines or base lines. This may be done by the use of the traverse board.

Small tracts may often be handled, not by strip survey, but by a one-man examination. Whether the most available man for this work will be the lumberman, party chief, or experienced subordinate, will depend upon circumstances.

#### Primary Control

The Geological Survey bench marks and triangulation stations will constitute the primary vertical control. In case adequate primary control is not already established by the Geological Survey or other agency, it will be necessary to reference secondary control, both horizontal and vertical, to some conveniently located monument, the elevation of which is assumed. A large boulder firmly imbedded in the ground near a main road will serve the purpose very well if properly marked and witnessed. The monument should be on the land which is being examined, and

should be of such character and location as to insure permanence. It can be tied into any future system of primary control that may be established and the map duly corrected.

#### Secondary Control (Base Lines)

The base lines will ordinarily be run with the Forest Service standard compass and tape, using the Abney method for vertical control in case a contour map is required. However, in exceptional cases, it will be allowable to use any of the standard methods authorized in "National Forest Surveys and Maps." The base should be laid out well in advance of the strip cruising, and should be marked by temporary stations every 5 to 10 chains. Permanent stations, of the character of Class B monuments as described in "National Forest Surveys and Maps," should be established on the base line at intersections with boundary lines, roads, trails, important streams and divides, and elsewhere every one-quarter mile except when following a boundary line with corners one-quarter mile or less apart which has been or will be run out by an Acquisition survey party.

Portions of the boundary of the tracts being appraised should be used for base line location whenever practicable. Of course, advantage should be taken of roads or trails if conveniently located on the tract. Except in the case of small tracts, the base line should always be planned so as to form a closed traverse, to which as many of the strips as possible can be tied at

both ends. It should be borne in mind that the checking of a return strip on the base line 10 or 20 chains from its starting point is no check at all on consistent errors in chaining or direction.

The base line should, of course, be tied to the boundary of the tract at as many points as possible and to any nearby Geological Survey bench marks, Government boundary survey corners, or points on other important surveys.

Blazing temporary lines should be avoided as much as possible, and, when necessary, should be limited to light bark blazes. Where there is danger of misunderstanding, the local people should be given to understand that these lines are only temporary and are not regarded as property lines.

### Units of Cruise

Cruising units will usually correspond with the natural logging units, comprising watersheds, the timber on which can conveniently be removed at one time and with one main branch of logging railroad and one set of logging roads. The size of a unit may vary within rather wide limits, even for a given set of equipment and a single operator. Considerable study and the exercise of good judgment will be necessary to the choice of the logical logging units. The results of the volume cruise should be presented in the case of large tracts by logging units, as well as for the tract as a whole, and a brief description should be given for each unit. In the examination of

a large tract, it is important to decide upon the cruising units at the start, later making such revision as is necessary. Small tracts will usually not be divided, and in some cases, tracts of considerable size.

It should be borne in mind that a recomputation by very small units may sometime be desired for administrative purposes. To this end, special care should be observed to change tally sheets in accordance with the instructions under "Use of the Tally Form," page 34.

#### Determination of Types

The determination of types on the ground and the mapping of their boundaries is important. The valuation of the land is directly dependent on this, while the estimate is indirectly affected, since the types of forest land are planimetered from the map and the estimate of timber per acre for each type is applied to the type areas. The smallest unit which will be considered in mapping is  $2\frac{1}{2}$  acres, which is 5 chains square or one-fourth inch square on the standard scale. Whenever relatively inexperienced men are used, their determination of type must be checked most carefully.

The preliminary examination, if one is made, should determine the types to be distinguished. The nonforest types and the subtypes are the same for both the southern Appalachians and White Mountains, but the forest types vary so widely between the two regions that a distinction must be made.

## Types of Open Land

### Waste or Barren

Lands which are incapable of producing either forest or grass, either because of elevation, exposure, or rocky surface. This includes burns which are so severe that reproduction of merchantable species is prevented or will take place only after a temporary type of little value has intervened.

### Fields

Cultivated Lands.--All lands in cultivation now or during the past season should be included. The report should show whether these lands are suitable for permanent agricultural use.

Grasslands.--Pastures, abandoned fields in grass, and balds. This includes all land, the chief cover of which is grass. Refer to use of grasslands as "grazing;" the use of woodland as "range."

Restocking.--Cultivated or grasslands which are restocking to forest trees below sapling size to such an extent that a forest cover will probably be formed within a period of five to ten years.

## Types of Forest Land

### Southern Appalachians

In order to obtain uniformity in type classification in mixed Appalachian forests, the method to be followed is to depend



largely upon the average number of logs in the dominant trees of the mature stand. Accordingly, in the case of mature hardwoods, the average number of 16-foot saw logs per tree to be used as a basis for determining the different types is as follows: Three or more, cove; two, lower slope; one, upper slope; no saw timber, ridge type. A combination of two of these classes may often be made as subsequently explained.

In classifying a type in which yellow pine predominates, one log should be added to the limits given above, since the height of mature pine is greater than that of hardwoods on the same grade of soil. For example, yellow pine stands with mature dominant trees averaging three logs would be classified as lower slope, and two logs as upper slope, while pine stands of poorer height development would be ridge. Spruce stands need not be subdivided, since this species is limited to a very narrow range of site conditions.

The types of forest land as used in Southern Appalachian appraisals are not, strictly speaking, forest types. They are in effect stand classes based on the productive capacity of the site as expressed in the height of the mature timber. The objects in determining "types" of this kind are to afford a basis for soil valuation which permits ready comparison between different tracts and to facilitate estimating by separating the timber into relatively homogeneous classes. The forest types of the Southern Appalachian hardwoods based primarily on composition vary so in quality

and are so difficult to define precisely that they can not be used to advantage in appraisals. However, the types or stand classes used are normally characterized by certain species and situations as follows:

Cove.--Cove types are found along the borders of streams and sometimes on moist fertile, though perhaps rocky, slopes. The predominant species are usually poplar, chestnut, red oak, hemlock or white pine. Other characteristic species may be white oak, cucumber, ash, birch, beech, maple, and occasionally sweet gum. The best quality of chestnut, and red, white, and chestnut oak are often found in cove mixture. Virgin stands are tall and dense, with little reproduction, but often with dense undergrowth of laurel.

Slope.--The slope types include the extensive areas capable of supporting saw timber lying immediately above the cove sites. There is a great variety in composition, depending on soil, aspect, and elevation. As a rule, at lower altitudes, red oak and chestnut, sometimes with white pine and hemlock, and beech, birch and maple, are characteristic of north slopes, while hickory, white oak, chestnut oak, and Spanish oak, occasionally with a mixture of yellow pine, are more common on south exposures. At the highest altitudes on north slopes, birch, beech and maple, sometimes with scrubby oak and chestnut, forms a characteristic mixture, and is usually found just below spruce type where this occurs. Ridges which have sufficient soil and are not too exposed support slope type timber usually of Spanish, black, or chestnut oak with

hickory, and also at lower altitudes with black pitch or shortleaf pine. The lower slope type being the better quality, occurs below the upper slope, and usually runs high on north slopes and low on south slopes. Except on very long slopes it is often desirable to avoid differentiating between lower and upper slope, especially if one or the other type is represented only by a narrow belt of timber. On some of the sandstone and shale soils, where there is no cove type timber or only a very little which barely meets the height requirement of this class, it is desirable to include it with the lower slope and keep the distinction between lower and upper slope.

Ridge.--Ridge types comprise scrubby open stands on exposed sites yielding only minor products, such as tanbark, acidwood, and ties. Chestnut oak, chestnut, Spanish oak, pitch and scrub pine are characteristic species. The soil is usually dry and thin and often rocky. Where these stands are confined to narrow broken belts of relatively insignificant area, it is desirable to combine them with the upper slope types.

Spruce.--This type is common at elevations above 4,000 feet and is made up of nearly, if not quite, a pure stand of spruce, or a mixture of spruce and balsam, while at slightly lower elevations and on northeast slopes in some sections, hemlock forms a large proportion of the stand. Beech, birch, and maple are also common associates.

## White Mountains

In the White Mountains it is possible to make the type classification wholly on the basis of composition. The following are distinguished:

Pine.--This type in the White Mountain region is confined to the lowest foothills and valleys where forest land grades into farm land. It is sometimes the best soil which can be used for forest purposes and an agricultural soil of fair quality; again it occupies sandy or rocky soils which are worthless for farm crops. The principal species are white and red pine.

Hardwood.--This type, like the pine, is found between the valley farms and the heavy stands of spruce which lie on the slopes of the mountains. It consists of a mixed growth of hardwoods in which beech, birch, and maple are generally the principal species at the present time, but in virgin stands there is considerable white pine and spruce.

Spruce.--This type is made up of nearly, or quite, pure stands of spruce, and reaches its best development usually at elevations of 2,000 to 3,000 feet. There are also large areas of comparatively gentle slopes at lower elevations which are covered with heavy stands of spruce and balsam, the white pine which originally composed so large a part of the volume of the stand having been removed in the early logging operations.

Birch-Popple.--This type is a second growth on an old clearing or burn in the original forest, consisting principally

of popple and paper birch, usually with an understory of spruce. It is a temporary type, but covers such a large area and is so distinctive that it is recognized as a major type. In case the stand has not reached merchantable size, it should also be designated as second growth, this being indicated on the map by the appropriate hatching.

Subalpine.--In this type are included the stunted and scrubby stands of unmerchantable timber closest to the upper limit of tree growth. Spruce and balsam are the principal species, with a scattering of birch. The stands vary in height from 4 to 30 feet, according to the elevation, exposure and depth of soil. Along the upper limits of this type the trees are scrubby and form dense thickets.

#### Subtypes - Appalachians and White Mountains

Subtypes should be indicated by the proper hatching over the original forest type colors, and are classified with the particular forest type to which they belong. An exception is made in the case of extensive burns, which may be left white in case it is not practicable to map the underlying types. If there is a high percentage of abandoned farm land, cut-over land or burn, these subtypes should be handled separately in the computation of both area and stand. This procedure may in some cases be advisable with regard to culled lands.

Virgin.--Forests which have not been culled, cut over, or damaged by fire,\* insects, or wind sufficiently to make the present condition materially different from the original natural condition of the stand. In general, maturity is inferred.

Culled.--Forests which have not been closely cut, the best trees having been removed so recently that growth has not restored the original conditions. Old culled stands in which natural volume has been reestablished should be classed as virgin. In text culled stands should be separated into lightly culled, 25 per cent or less, heavily culled, 59-24 per cent removed.

Cut-over.--Forests in which practically all the good, merchantable timber has been cut 60 per cent or more, leaving only trees unmerchantable because of defects, or unmerchantable species, or young growth. The conditions should be clearly stated in text.

Burned.--This subtype includes lands severely burned especially coniferous, but without preventing reproduction of merchantable species. It should not be used for light surface burns, such as are so common in the South, but only in cases where the ground and timber are burned to such an extent that the stand is rendered largely worthless from a merchantable standpoint, with

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\*See footnote under "Outline for Reports on Large Tracts" for discussion of virgin ridge when lightly timbered and desirability of regarding it as culled.

most of the mature timber destroyed or badly injured. However, such light burnings which would not appear as a subtype should always be mentioned in the reports. When the forest cover is restored on burned lands, they should be classified as second growth.

Second Growth.--Areas with the original forest removed by heavy cutting, clearing, fire or other agency, which are now covered with a young growth usually in the sapling or pole stage, but which has not yet reached a good saw log size. This does not include the popple, paper birch second growth of the White Mountains, which, on account of value when of small size, is considered a major type. If, however, the birch-popple stand is not yet merchantable, it should be designated as of the second growth subtype.

#### Per Cent of Estimate

The following standard range of per cents (representing the proportion of the total area covered by estimate strips) has been adopted:

#### Per Cent for each Type

Area of tract Acres	Cove	Lower slope	Upper slope and ridge	White Mt. types
0 - 200	100	50-100	5-100	10-50
200 - 500	50-100	25-100	5-25	10-20
500-1,000	25-100	10-25	5-10	10-15
1,000-5,000	20-100	10-25	5-10	7½-15
Above 5,000	20-100	5-20	2½-10	5 -10

It should be understood that lands without merchantable timber need not be "stripped" any closer than is necessary to locate them and determine their soil and type character.

A convenient way to increase the estimate on coves and lower slopes is to run zigzag strips up each hollow, changing the direction of the strip so as to cross the hollow again when the edge of the type is reached. It is usually desirable to use a three-man crew with two estimators, each estimating a strip one chain wide on one side of the compass line, one snubbing chain and one mapping. It is very important to reach on each course the extreme limits of the type as mapped, or too large an estimate will be obtained. This "zigzag" method is especially convenient when belts of good timber are separated by broad, high, lightly timbered ridges, since the gridiron strip across the ridges can then be run far apart, and most of the work done where the timber is located.

If necessary in the judgment of the party chief, a 100 per cent estimate can be made of the coves by having crews follow the hollows and tally all of the timber in the type. Except in hollows where base lines have been run, it is necessary to make a rough box compass traverse for mapping purposes.

It is always necessary, when the per cent of estimated is to be increased in the hollows by the "zigzag" or "100 per cent" method, to provide for tie points on the hollows where no base line is run by designating on the ground the crossings of the regular



gridiron strips. This can usually be done most conveniently by blazing a sapling with a pocket knife, and marking the initials of the estimator, date and distance, with an indelible pencil. The mark should be made on a trail or road, if any, or close to the stream in a place where it is most likely to be observed by the "zigzag" or "100 per cent" crews.

An important factor which should not be overlooked by the party chiefs in deciding upon the per cent of estimate, is the accessibility of the tract. It is obvious that any inaccuracy in the estimate does not affect the valuation of an inaccessible tract, where the timber has only a nominal stumpage value, to the same extent that it does valuation of tracts lying close to the railroad where stumpage is high and even minor products are important. Therefore other things being equal, accessible tracts require a more intensive estimate on the basis of a higher per cent of area tallied than inaccessible tracts.

#### Width of Strip

The standard width of strip is one chain, but this need not be adhered to under conditions which make a change desirable. In making an estimate on a more intensive basis than a 10 per cent tally, it is economical to use a strip two chains wide, provided the tract is not too brushy. In using such a wide strip, the estimator must use extra care to check his judgment of diameters on the trees near the far edge of the strip. The two-chain strip

is especially convenient to use in connection with topographic work, using a two-chain tape.

In brushy locations, especially in the summer when the foliage is thick, and in dense young stands, the use of a strip wider than one chain is not practicable. In some cases it might even be allowable to use a strip only 33 feet wide, but as a rule the wider strip is preferable, even though it is necessary for the estimator to do some extra walking about to see all of the timber. The narrower the strip, the smaller the percentage estimated in proportion to the ground covered, and the greater the percentage of error due to inaccuracy in estimating the width of strip.

The width of strip, unless it is one chain, should always be noted on each tally sheet.

#### Method of Tally

Estimates for lumber contents will be based upon tallies of diameter breasthigh and the number of 16-foot merchantable logs.

Diameters will be tallied in 2-inch classes recording the even numbers. Six inches will be the minimum diameter class recorded. In Virginia and West Virginia trees 10 inches and up will usually be considered large enough to estimate as saw timber. South of Virginia 12 inches should be the minimum diameter for hardwood saw timber. In the White Mountains 6 inches should be considered the minimum merchantable diameter for all species. While

all timber will be tallied, in working up the estimate only such material as is actually merchantable at the present time should be included. A tree will not be recorded for lumber unless it will make at least one log 10 feet long, which should ordinarily be tallied as if 16 feet. All saw timber trees should be tallied to the nearest even 16-foot log. Half-log lengths will be tallied only in case the timber is short bodied but valuable on account of unusual markets.

The question of defect in trees will be largely covered by care in tallying correctly the number of merchantable log lengths. When a tree is so defective that it must be butted off, an appropriate deduction should be made from the diameter of the tree to compensate for the loss in butting, i. e., taking a diameter higher up on the stem. Hidden defects in logs tallied must be allowed for in the form of a cull factor, to be applied when the estimates are worked up, and as a basis for which careful observations must be made in local logging and sawmill operations.

Merchantable species of infrequent occurrence may be tallied together under the heading "others." Unmerchantable species shall not be tallied unless they have an investment value based on prospective merchantability, in which case they shall be kept separate from the rest of the stand.

All trees of merchantable species which are in inaccessible places shall be tallied separately from the merchantable trees and included in the soil value.\*

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\*See page 2.

The estimator should aim to tally each tree in terms of the product for which it is most suitable. Poles and ties will be tallied direct. Chestnut oak containing only hewed ties will be tallied both in the tie column and in the no-log column, the latter for tanbark. Trees of other species of such form or with such defect that they can not be tallied for lumber contents, but which are suitable for pulp or extract wood or tanbark, will be tallied in diameter classes disregarding the log lengths, and their contents worked up on the basis. If there are no volume tables by types available, enough heights must be taken for the preparation of height curves based on diameter for each type in cases of species estimated for acid and pulpwood and tanbark.

The breasthigh diameters will be determined ocularly, but checked by the use of the cruisers or Biltmore stick, which should be constantly carried by each estimator. The check should be made on at least every tenth tree, and especially on trees of large diameters. It is especially important to check the judgment on a number of trees consecutively for not less than 10 minutes at the beginning of work, morning and afternoon, and also late in the day. A check is also necessary when a material change in the range of diameter classes is encountered. In use, the stick should be held horizontally against the tree and at right angles to the line of sight. The eye should be on the level with and either 23 or 25 inches from the point where the stick touches the tree or log, according to the distance for which the stick is adjusted. The proper distance is shown in figures on the edge of each stick. The eye,

and not the head, should be turned in making the reading. In case of doubt the smaller reading should be taken, as the use of the Biltmore stick tends to give slightly high results.

Merchantable lengths should be frequently checked by the use of an hypsometer, Abney level, pole 16 ft. 6 inches in length, placed at the base of trees, or where trees are being felled, by actual measurement.

The width of the strip should be checked by the use of the chain every morning, and not less than four times during the day. It is important to do this at times when the type changes or some particular tree is in doubt. Sometimes time can be economized by having the compassman run out with the chain while the estimator is mapping. It should be remembered that a given distance appears longer on a slope than on the level, and in small open timber than under dense, large timber. Whenever a man or a party starts work in a new locality the judgment of the estimators should be constantly checked.

#### Check Estimate

A check estimate must be made at least once each month and the results reported to the office. A sample report on a check estimate of the character desired will be furnished upon request. In laying out check strips, the center trees should be marked lightly by bark scratching or crayon showing where the compassman passed. All types, if possible, should be included in the check strip, which should not be less than 20 chains in length. The decision as to the number of logs per tree and as to what trees should

be excluded on account of defect should be made by the party chief. The work should be so arranged that all of the estimators can accompany the party chief and lumberman when making the check tally. The chaining should be carefully done and the trees on the strip carefully measured. Tally sheets for the check should be kept by at least two men independently, as a check against errors in recording the trees.

Measurements to afford a basis for calculating the value of young growth or of the soil should be made whenever even-aged stands are found which are approaching merchantable size and in which the natural conditions have been favorable for growth. This will apply particularly to cut-over or burned tracts which are re-stocking under favorable conditions. For sample plots of not less than 33 feet square or one-fortieth of an acre in area, there should be recorded the number of trees by species and diameter classes between the minimum merchantable diameter breasthigh and 5 feet in height. The average age of the stand should be determined from felled trees.

#### Use of the Tally Form

Tally sheets will be changed with each change of type and at each spur ridge which limits a small logging chance for which a separate estimate may sometimes be desired for timber sale purposes. Furthermore, ordinarily not more than 20 chains and at most not more than 25 chains of strip should be tallied on one sheet.

The tallyman is responsible for seeing that the tally form is completely filled out. Before handing it in, he should look over the tree tallies to see that there are no points that would be doubtful to anyone working up the figures. The "acres estimated, forest," should be obtained from the tallies under "chain tally, forest," and checked by comparison with the figures under "chains, forest." It should be remembered that while any omissions or ambiguities in the record can readily be corrected by the tallyman at the end of the day, they are often impossible to correct later.

At the end of each chain, a tally (/) should be recorded in the proper place; if in forest, after "chain tally, forest;" if in agricultural or abandoned farm land which is excluded from the timber estimate, after "chain tally, open;" if in the course of an offset on which no timber is tallied, after "offsets." The direction of the offset should also be shown on this line. Every time a new series of tallies under any heading is begun, the number of the last preceding tally should be written thus:

0                      18                      60  
~~///~~ /                      //                      ~~///~~.

By this means, the tallyman can tell at any time his total distance from the point of beginning. At the same time, under the heading "chains," with its two subheads "forest" and "open," each series of tallies should be recorded by giving the number of the last preceding chain, and of the last chain in the series, so that the

difference between the two is the number of chains in the series. For example, if the above sample chain tally were for forest land, it would appear summarized under "chains, forest" as follows: 0-6, 18-20, 60-65. The total number of "chains, forest" represented would be 13, or the same as the number of tallies under "chain tally, forest." The "chains, forest" record is very useful in checking with the compassman's map.

Under "location" should be given the beginning and ending of the line with reference to base line stations. The "course" is a record of the compass direction.

#### Silvicultural and Logging Data

The back of the tally form contains an outline which calls for certain information in regard to silvicultural and logging conditions. This should be filled out in brief on each sheet used. If a tally sheet covers ground similar in whole or part to that described on a previous sheet filled out during the same day, time can be saved by referring to that sheet instead of repeating the same information. The terms in the outline which are applicable may be checked instead of copied, i.e., if the ground is one-third stocked this should be checked, not written out. Particular care should be taken to note any factors affecting the cost of logging. If the ground is smooth enough, so that a wagon can be driven over it to pick up bark or acidwood, this fact should be noted. It is sometimes convenient to classify different parts of a tract in accordance with the difficulty of road



building, using such terms as "road building easy," "medium," "difficult," or "very difficult." These terms may be given a definite meaning by applying each to a specified range of costs applicable to the Area.

### Computation

As far as possible, the tally sheets should be worked up and the map compiled while the field work is in progress. By having the volumes of the valuation survey strips or sample plots calculated daily, errors may be caught up and corrected while the party is at work on the particular part of the tract where the errors occur. If there is considerable rainy weather, no one need be taken from field work regularly to do this computing, but rather than have the work pile up, it is better to assign some of the field force to do it.

Each tally sheet should be scaled separately; if possible, by the man who did the field work. The totals by species and grand total on each tally sheet can be transferred to computing sheets, and the totals for each type on the unit obtained by addition. A continual check on the computation is afforded by comparison between the grand totals and totals by species.

#### All work of computation should be carefully checked.

The original work must therefore be done in such a manner that all the steps appear and the work of checking can be done quickly.

The men should familiarize themselves with the use of the slide rule. This instrument can be used with much saving of

time in working out divisions to determine average stands per acre, in checking multiplications, and in computing latitudes and departures. The Barbour trigonometer is also especially convenient for computing latitudes and departures by the graphic method. Slide rules and trigonometers will be supplied on request.

### Final Estimates

No opportunity should be lost to check up the estimates. Provision must not only be made to eliminate errors in the calculation of the volume from the field tally, but after the estimates have been computed they should be compared with the stand on the ground. Then, if there is doubt as to their accuracy, checks should be made. The final estimates should show the amounts per acre by species of all the different classes of material which are marketable on the tract under examination.

### Tables

Standard volume tables are furnished. The printed tables give ordinarily too low volumes for one and  $1\frac{1}{2}$  log trees on account of the low top diameter assumed. Other tables for these log classes have been sent out from time to time, and those best adapted to each Area should be used. Whenever possible, the volume tables should be checked by measurements of trees felled in logging operations and the results reported to the Washington office.

## Horizontal Measurement

Lands will be purchased only on the basis of horizontal survey, consequently volume survey strips should be reduced to a horizontal basis by making allowance for slope in accordance with the following table. Estimates of grades should be frequently checked by the use of instruments, care being taken to distinguish between per cent and degree of slope.

### SURFACE MEASURING ON SLOPES

Table showing the increase of distance to be added to one 66' chain of surface measurement to give one chain of horizontal measurement. (Approximate; for use in timber estimating.)

Slope	:	Grade:	: Equivalent	:	Increase of distance per	
	:		: vertical	:	66' chain (=Exsecant)	
	:		: angle.	:		
	:	Per cent	: Degree	:	Links	Feet
Level	:	5	: 3.	:	.1	--
Gentle	:	10	: 5.5	:	.5	.3
	:	15	: 8.5	:	1.1	.7
Moderate	:	20	: 11.5	:	2.0	1.3
	:	30	: 16.5	:	4.4	2.9
Steep	:	40	: 22	:	7.8	5.1
	:	50	: 26.5	:	11.7	7.7
	:	60	: 31	:	16.6	10.9
Very steep	:	70	: 35	:	22.1	14.6
	:	80	: 38.5	:	28.0	18.5
	:	90	: 42	:	34.6	22.8
	:	100	: 45	:	41.4	27.3

The per cent of grade is determined by grademeter or hypsometer.

Vertical angles are read by clinometer, Abney level or transit.

The following table illustrates the reduction of area that occurs when horizontal measurements are used instead of surface measurements. The per cent or degree of slope is the average for the entire exterior boundary of the tract under consideration.

Comparison of surface measurements with horizontal  
measurements for different average slopes

Area of tract 100  
units by surface  
measurement on a  
side, each side  
having same slope

		: :	
--	--	---	--

## Party Organization

Where thoroughly trained and experienced men are available, the ideal toward which each party chief should work is the organization of two-man crews. The division of the work between the men will be determined by the party chief.

Work should be distributed among the various members of the party in such a way as to largely relieve the party chief of matters of routine, leaving him free for planning and supervision. One man should be appointed property clerk and should check up all property at frequent intervals. One or two men may be placed in charge of mapping, and the same arrangement made for computing, alternating assignments as circumstances may dictate. One man may be made responsible for subsistence and moving.

A place should be provided for keeping all instruments, notes, tally sheets, etc., and everything should be put away at the close of each day. System and order are essential to efficiency.

All steps in computing should be recorded and the records of the party should at all times be kept in such form that they will comprise a complete and intelligent history of the work of the party.

Camps must at all times be kept in a neat and sanitary condition. All camp refuse must be disposed of in a prompt and systematic manner.

Care should be taken not to antagonize the local people, but their friendship and good will should be cultivated.

### Reports on Detailed Appraisals

Reports should be transmitted in a neat, legible form. While they should follow the sequence of the appropriate outline for their preparation, it is seldom necessary that every topic mentioned in the outline should be discussed. The outline is for the purpose of suggesting various topics to be considered, some of which, however, may be of so subordinate a character that they need not be taken up. On the other hand, there may be topics of prime importance in valuation not specifically mentioned in the outline which should be developed in the report. There are certain factors, however, which are common to the consideration of every tract and under no circumstances should these be omitted. Such are area, location, ownership, conditions of offer, surface, factors of value and recommendations. In making recommendations it is expected that the examiner will weigh the conditions of offer, the location of the tract with reference to other lands, and the results of the appraisal.

Any points which make a tract especially desirable should be emphasized so that they will not be overlooked. The Area Chief should review all of the recommendations most carefully and see that no points bearing on the administrative desirability of the tract are overlooked. In case the difference between the price recommended and the value found is greater or less than

normal, the reason for this should be expressly stated in the recommendations.

Two outlines for reports are given, one to be used for small tracts or even tracts of 3,000 to 5,000 acres when conditions are uniform and simple, the other to be used for large tracts only. The latter, it will be noted, is rather two outlines in one, since certain parts are to be omitted and others substituted, except when the tract is the first one to be reported upon in the Purchase Area. Care should be taken to make all descriptions and statements clear and concise. It is especially desirable to avoid any expressions which would indicate arbitrary valuation as "a value has been given," "assigned," or "allowed." It is more accurate to say "a value has been found," "land of this type is worth."

A copy of each original report transmitted must invariably be made for the Area Office files. If a typewriter is not available for use, a carbon copy can be made in longhand by the use of a copying pencil or stylograph which will be sufficient for the needs of the Area office.

Each report should be accompanied by a Form TE-1 (see appendix) so as to put on record complete information in regard to who is responsible for the field work on each tract and the volume tables\* which were used. When several reports are transmitted they should be accompanied by a summary sheet, (see appendix) forms for which are supplied. All of the columns should be

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\*See p.57.



filled out in accordance with the headings with the exception of those on the right hand beginning "Owner written to."

Outline for Reports on Small Tracts

-----, 191 .

LANDS OF -----  
(#-----)

----- AREA

By -----, ----

General Information

Area, location, accessibility, ownership, reservations and easements, terms of proposal. Mention adjoining lands by tract numbers, as well as by name and give present status, whether offered, approved or acquired. Give both proposal and planimetered acreage. Right of way across other tracts needed for logging.

Description

A brief paragraph or two bringing out all the salient features of the tract which affect its value or desirability. Do not recapitulate figures given in the table, but average type estimates may be given if significant.

Valuation

Any special facts in reference to the land and timber valuation should be mentioned and the two tables should be given,

Table 1 in accordance with the following form, and Table 2 in accordance with the form given for Table 5 of the long report.\*

The table of types and subtypes can be omitted when there are only a few types and one type greatly predominates, but a statement should always be made as to whether the forested part of the tract is to be regarded as virgin\*\*, cut-over, or culled. If improvements are valued separate from the soil, the total and average value per acre of improvements should be given.

Table 1.--Areas of types and subtypes and value per acre of land and young growth.

Type and subtype	Area (subtypes)	Area (types)	Value per acre
Cove			
Virgin			
Culled			
Cut-over			
Burned			
Second growth			
Slope			
(Same subtypes as cove)			
Ridge			
(Same subtypes as cove)			
Fields			
Cultivated			
Grass			
Restocking			
Barren			
Total area			
Average value per acre			

\*See page 47.

\*\*See footnote on page 37.

Table 2.--Stand per acre of species and products and value per acre of tract.

Recommendations

This paragraph should be complete, giving reasons, so that the report can be acted on intelligently. If rights of way over adjoining lands retained by the vendor should be obtained, these should be described. The form used in reports for the Commission should not be used.

Outline for Reports on Large Tracts

1. General Information

a. Total area by land classes

Virgin\*

Culled and cut-over

Burned and barren

Fields

Timber reserved or outstanding

b. Location of tract

Area, county, township, lot, etc.

Watershed

Nearest railway station

---

\*In case all or practically all of an uncut tract is on upper slope or ridge and the acre stand is less than 1,500 feet per acre, so small as to lead to misapprehension as to the character of the stand, it would be advisable, if there is evidence of thinning by fire, to describe the stand as culled by fire and the tract as "culled" to exclude such a low stand from being classed as virgin.

c. Ownership

Names and addresses of principal owners

Conflicting claims

Squatters

Status of mineral and timber rights--all outstanding easements (copies of such to be appended)

History and use of tract

Character of titles

Warranty, prescriptive, and tax

Acreage under each class

d. Condition of proposal (write on separate pages so that modified pages can be substituted for Commission report if desirable)

Reservations

Terms

Length of option

2. Description of locality (omit except in cases of first large tract reported on in the Area)

a. Topography and soil

Principal streams

Character of surface

Exposure

Rock

b. Climate

Local records of precipitation and temperature

Liability to winds and frosts

c. Forest

General character

Effect of elevation, soil, and exposure

Principal species

Influence on streamflow

Low water

Floods

Erosion

Influence of fire on erosion and run-off

3. Development of country (omit except in cases of first large tract reported on in the Area)

Nearest distributing point (population and commercial importance)

Trails, roads and railroads

Condition and grades

Lumbering possibilities

Agricultural possibilities

Mining possibilities

Power and reservoir sites

Recreational value

4. Description of tract (with particular reference to comparison of logging units)

a. Topography and soil (omit if covered under description of locality)

Principal streams

Character of surface

Exposure

Rock

b. The forest (omit if covered under description of locality)

General character

Influence on streamflow

c. Forest types

Principal species

Area and percentage of each

Situation

Altitudinal range

Aspect and gradient

Composition by subtypes

Principal and incidental species

Approximate occurrence by volume and number

d. Condition of stands (by subtypes)

Presence or absence of young growth

Damage from fire, insects, fungi, wind and frosts

Merchantable condition

Cull percentage

e. Nonforest types

Situation, area, and percentage of tract

Possibility of reforesting

Table 1.--Area of Types and Subtypes of Land by Logging Units

Type and subtype	Rock Creek (acres) subtypes	Noontootly Creek (acres) types subtypes	Totals by subtypes	Totals by types
Cove				
Virgin				
Culled				
Cut-over				
Second growth				
Slope				
(Same subtypes as cove)				
Ridge				
(Same subtypes as cove)				
Fields				
Cultivated				
Grass				
Restocking				
Barren				
Total (acres)				

5. Valuation of timber (In case lumberman's examination has been made condense to a brief paragraph referring to his report)

Market, general and local

Accessibility

Present cost of marketing

Detailed logging costs by logging units

Influence of adjacent holdings

Stumpage prices for different classes of material

Current local stumpage prices



Table 2.--Average Stand per Acre by Types (Logging Units)  
and Classes of Products

	Unit 1	White Creek				Unit 2	Black Creek, etc.		
Type	Lumber bd. ft.	Acidwood cords	Bark cords	Ties	Poles, etc.	Lumber bd. ft.	Acidwood cords	Bark cords	

Cove

Slope

Ridge

Note.--Make type names correspond to those for which separate account was kept in tallying. Include subtypes when tallied separately. This data can all be obtained directly from the computation sheets and the table can be modified to suit the number of units in each tract. See Table 1. (Extend to right if necessary.)

(Southern Appalachian form)

Table 3.--Stand and Value per Acre by Species and Products

Summary for

(Name of Logging Unit)

Species and products	Stand per acre	Stumpage value per unit	Stumpage value per acre
----------------------------	----------------------	-------------------------------	-------------------------------

Shortleaf pine			
White pine			
Yellow poplar			
Hickory			
White oak			
Red oak			
Black oak			
Chestnut oak			
Chestnut			
Ash			
Hemlock			

Others

Total

Extract wood			
Hemlock bark			
Oak bark			
Hemlock pulp			
Poplar pulp			

Poles			
Post			
White oak ties			

Total

(White Mountain form)

Table 3.--Total Stand and Value of Timber

Summary for

(Name of logging unit)

Total stand	Stumpage value per unit	Total stumpage value
-----M hardwood saw timber		
-----M spruce       "       "		
-----		
-----		
(Total saw timber, ----- M feet)		
-----cords paper birch		
-----"     popple		
-----"     spruce pulp		
-----"     -----		
(Total, ----- cords)		
Total value of timber, -----		
Average value per acre of timber, ----- \$		

6. Valuation of land without timber

The market, general and local

Prices paid for similar tracts

Adjacent key holdings

Importance due to location, etc.  
(as key holdings)

Table 4.--Value of land and young growth per acre, by types.

Type	Acreage	Value per acre	Total value
Cove			
Slope			
Ridge			

Note.--Subtypes should also be included  
when a separate value has been found  
for them.

(Southern Appalachian form)

Table 5.--Stand per Acre of Species and Products  
and Value per Acre of Tract

Species and products	Stand per acre	Stumpage value per unit	Stumpage value per acre
Shortleaf pine			
White pine			
Yellow poplar			
Hickory			
White oak			
Red oak			
Black oak			
Chestnut oak			
Chestnut			
Ash			

Others

Total

Extract wood  
Hemlock bark  
Oak bark  
Hemlock pulp  
Poplar pulp

Poles  
Posts  
White oak ties

Total

Average value per acre of	saw timber	-	-	-	-	-	\$
"	"	"	"	"	"	"	other products
"	"	"	"	"	"	"	land
"	"	"	"	"	"	"	improvements
Total	"	"	"	"	"	"	tract

(White Mountain form)

Table 5.--Total Stand and Value of Timber and  
Value per Acre of Tract.

Total stand	Stumpage value per unit	Total stumpage value
-----M hardwood saw timber		
-----M spruce       "       "		
-----"       "		
-----"       "		

(Total saw timber ----- M feet)

-----cords paper birch
-----"       popple
-----"       spruce pulp
-----"       -----

(Total ----- cords)

Total value of timber

Average value per acre of timber - - - - -	\$
"       "       "       "       " land - - - - -	
"       "       "       "       " improvements- - - - -	
Total       "       "       "       " tract - - - - -	\$

7. Taxation

Assessed valuation and percentage of total valuation for  
taxation Unit; tax rate and amount paid on tract.

8. Recommendations (Begin on a new page so this part can be  
separated or replaced)

Price and terms recommended.

Special clauses for option, such as provision for  
rights of way over lands retained by the vendor,  
regulations for reserved timber, etc.

Note.--Entire report on a single large tract  
should not exceed 20 pages, typewriting  
spaced as usual, and 10 pages is usually  
long enough. An exception might be made  
in case of the first large tract examined  
on an area.

### Reports on Adverse Claims and Laps\*

All adverse claims by squatters or under color of title, or laps with other tracts, affecting a tract which is being examined, unless there seems to be no chance that the claim or lap in question will hold, should be appraised separate from the rest of the tract. It may be included in the report on the entire tract, but a supplementary report on each claim or lap should also be submitted. This report should follow the outline for reports on small tracts, but should pay especial attention to the history of the claim or of the title to the conflicting grant. If there is evidence of possession, as much should be learned and reported as possible in regard to the length of time the property has been held by the claimant and on what grounds he claims title. The possibility of acquiring the lap from the adverse claimant should also be stated.

The report should be prepared under the proper purchase designation in final form, one original and two carbons; the original and one carbon to be submitted to the Washington office, and the last carbon to be retained in the Area office files. One copy will then be attached to and made a part of the survey description which is transmitted to the Solicitor for title examination.

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\*For the procedure in regard to laps that are discovered after approval for purchase, see page 71 .



### Photographs

An attempt should be made to illustrate the leading features of each large tract by photographs. Pictures should be taken showing the average stand, density of stocking, and conditions of reproduction on the different types. Panoramic or general photographs illustrating the topography and distribution of types will also be very valuable in giving a definite idea of the character of the tract under examination.

In addition to photographs showing general conditions, a special effort should be made to get pictures showing the impracticability of using the land for anything but growing trees, and the importance of the forest cover for the protection of stream-flow. This will mean that exposures should be made to show up the steep slopes, rock outcrops, erosion, thinness of the soil, and the effect of exposure to wind. Other features worthy of illustration are the results of destructive or conservative logging and the life and thrift of the people living in the region examined. Pictures of the latter class will be especially valuable for illustration of articles intended to give a popular idea of the region in which the National Forests are to be made.

### Maps

All maps should be on the standard scale of 4 inches to the mile, and with the North and South line approximately parallel

to one edge of the paper. Three maps of each tract will be prepared if a topographic (contour) survey is made; two maps if not. These are as follows:

(1) The project record map. A rough map showing the tract boundaries; location of base lines and any reference points located, such as corners, prominent stations or monuments. It should also show the exact location of the strips and the place of each tally sheet on the strips by number. This map is intended for reference in the Area office and one copy on tracing cloth will be made.

(2) The standard "acquisition" type map showing boundaries, culture, types, drainage and summits of prominent ridges. Numbers of all surrounding tracts should be shown, and in case the Area boundary line is approached, the location of this should be shown by a light double line twice the width of a road. In case of a single tract small enough to be shown on a letter sized sheet for enclosure with report, the map should be on white drawing paper with an extra copy for retention in the Area Office. Only one tract should be shown on each of these letter size maps. All larger maps or tracts should be on heavy white drawing paper,\* and accompanied by a tracing from which white prints will be made in the Washington Office and a copy returned to the Area in place of a duplicate copy of the map being prepared for the Area files.

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\*Muslin mounted paper can be secured 30 and 42 inches wide.

(3) The contour map. This will not be required in all cases. It should show boundaries, culture and topography with contours. The contour lines should be brown with every fifth line emphasized. It may be submitted either on tracing cloth or heavy white drawing paper.

#### Drainage

A small proportion (about 10 per cent) of yellow ink should always be mixed with the blue ink used in denoting streams and drainage lines. This will facilitate the copying of such maps by photographic processes, since the pure blue does not photograph.

#### Type Symbols

Types will be denoted by letters as well as colors, thus permitting them to be indicated on tracings from which prints can be made and tinted without reference to the colored original. The type boundaries will be indicated by fine dotted lines and the letters should be as inconspicuous as is consistent with clear printing. The following letter symbols will be used:

Open lands	
Waste or barren	W
Fields	F
Pasture	Fg
Cultivated	Fc
Restocking	Fr

#### Forest Lands

##### Southern Appalachians

Cove	C
Lower slope	L
Upper slope	U
Ridge	R
Spruce	S

##### White Mountains

Birch-popple	B
Pine	P
Hardwood	H
Spruce	S
Subalpine	A

### Ownership and Status Maps

Ownership and status maps should be prepared on the best base map available. The topographic maps which have been largely used will be supplanted as fast as Atlas or recreational maps are obtained which show in addition to the surveyed lands the roads and streams within the Area boundary. A scale of one inch to the mile is preferable for ownership maps. All tracts should be indicated in accordance with the standard legend.

Tracts will be numbered consecutively on each Area. If a vendor offers a tract and, therefore, has been assigned a number, all tracts subsequently offered by him should be designated by the number previously assigned to him, but with a small letter added. For example, in 1914, J. Q. Pierson offered in one proposal three tracts and they would be numbered 287, 287a, and 287b; in 1915 he offered two other tracts, together or singly; one would be numbered 287c, and the other, 287d.

If any of these tracts which were examined and reported for consideration by the Commission as one boundary should be found, at the time of survey, to be really separated into two parts, one portion would be designated as J. Q. Pierson (287) and the other J. Q. Pierson (287-I); or in the case where the tract already had a letter added to the number, as in 287c, the designation would be J. Q. Pierson (287c) and J. Q. Pierson (287c-I).

Ownership maps should be accompanied by an ownership list in two parts. One part should be arranged in numerical order and

A-Mt. Mitchell

(Sample of) Alphabetical Index

No.	Name	Index	No.	Name	Index
40	Gurley, W.M.	9-e	11a	Houck & Hudgins	2-c
40a	" "	9-e	11b	" " "	3-c
40b	" "	9-e	11c	" " "	10-e
			170	Hudgins, D. E.	11-e
			260	Hughey, Will	3-w
			162	Hunters	7-e
			137	Hurst Bros.	15-w
			341	" Creed	17-w
			343	" John	17-w
261	Haines Bros.	15-w	351	Hutchins, Mrs. V.	20-w
267	" W.B.	15-w	218	" W. W.	17-c
91	Hall, Fallow	10-e	220	Hynia, James	17-c
395	" Wm.	11-w			
131	Harris, D. H.	13-w			
264	Harrison, Bud	17-c			
308	Hemphill, Ben	7-w			
50	" Heirs of T.M.	10-c			
50a	" " " " "	7-c			
50c	" " " " "	8-c	57	Ihne, F. W.	5-c
			322	Ingle, A. I.	11-w

A-Mt. Mitchell

(Sample of) Numerical Index

	Index	Size	Condition	Status	Remarks
251 Metcalf, Glea	16-w		Culled	All cleared	Home place
252 Mancey, T.	16-w	90	"	60 A. "	" "
253 Blankenship, Jas.	16-w	200	"	100 " "	" "
254 Maney, G. B.	17-w	500		200 " "	
255 Maney, John	17-w	80	Not for sale	40 A. "	Home place
256 McTruff,	18-w	130	Culled	40 A. "	" "
257 Maney, Walter	17-w	100		50 A. "	" "
258 Higgins, Andrew	18-w	80		30 A. "	" "
259 Maney, J. W.	17-w			40 A. "	
260 Burlison, J. W.	14-w			Largely agricultural	

Under status should be stated whether "offered," "approved,"  
"withdrawn," "examined," "does not wish to offer."

W = west side of map  
c = center  
e = east side

In preparing ownership list, there should be a wide margin on the left for binding.

























In referring in correspondence to tracts, especially when giving lists of tracts, both number and index should be given in order to facilitate locating them on the map.

give briefly the tract number, name of owner, index number, acreage, condition, asking price and status. The other part should be in alphabetical order giving only tract number, name of owner, and index number (two columns to a page). In the case of an area which is divided by legal rectangular survey, a list by the regular subdivisions, such as townships, sections and forties, or districts and lots, may be substituted for the numerical list. In such areas the alphabetical list should give in addition to the data specified above the subdivisions included, either township,, section, etc., or district and lot numbers.

Ownership lists should be prepared in quadruplicate, the original and carbons on thin white. Two copies should be submitted to the Washington office and two retained in the Areas files. If transmitted to Washington the area copies will be mounted on muslin.

# APPRAISAL LEGEND

(REVISED JANUARY 1917)

TYPE MAPS		OWNERSHIP AND STATUS MAPS
WHITE MOUNTAINS	SOUTHERN APPALACHIANS	
Birch-popple . . . . .	 Cove	 Location, definite in ink; provisional in pencil.
Hardwood . . . . .	 Slope or lower slope	 Failed to secure proposal.
Spruce . . . . .	 Upper slope	 Offered but not examined.
Subalpine . . . . .	 Ridge	 Examined
Pine . . . . .	 Spruce	 Under option
Waste or barren . . . . .	 Waste or barren	 Approved for purchase (pale green over yellow).
Fields . . . . . Cultivated - Fc Pasture - Fg Restocking - Fr	 Fields Cultivated - Fc Pasture - Fg Restocking - Fr	 Withdrawn or failed to reach price agreement.
Culled . . . . .	 Culled	 City watersheds or protected areas (pale brown).
Cutover . . . . .	 Cutover	 Farms (pale gray).
Burn . . . . .	 Burn	 Boundary revision recommended.
Second Growth . . . . .	 Second Growth	Use red ink on photo-topographic maps for boundary of located tracts and for numbers of tracts.
	 Outside boundary lines of examined tracts.	
	 Lot lines, grant lines, boundary lines of tracts not examined.	
	 Abandoned railroad grades	

## STANDARD COLOR FORMULAE

<b>Cove: (Birch-popple in White Mountains)</b>	
Green ink (Public Service) . . . . .	2 parts
Yellow ink (Stafford's) . . . . .	1 part
Water . . . . .	3 parts
<b>Lower Slope: (Hardwood in White Mountains)</b>	
Green ink (Public Service) . . . . .	1 part
Water . . . . .	8 parts
<b>Upper Slope: (Spruce in White Mountains)</b>	
Green ink (Public Service) . . . . .	1 part
Yellow ink (Stafford's) . . . . .	3 parts
Water . . . . .	3 parts
<b>Ridge: (Subalpine in White Mountains)</b>	
Green ink (Public Service) . . . . .	1 part
Yellow ink (Stafford's) . . . . .	2 parts
Water . . . . .	16 parts

<b>Fields:</b>	
Yellow ink (Stafford's) . . . . .	1 part
Water . . . . .	2 parts
<b>Waste or Barren:</b>	
Black ink . . . . .	1 part
Water . . . . .	50 parts
<b>Spruce: (Pine in White Mountains)</b>	
Brown ink (Higgin's) . . . . .	1 part
Water . . . . .	4 parts

Windsor and Newton brushes Nos. 1, 3, 5, and 7.

### Filing of Original Data

Each step of the computation involved in working up the estimates, including the tabulation sheets used, should be preserved so that the work can be checked by anyone and the figures available for computation at any time. The volume tables used in scaling should be specifically indicated on mimeographed form accompanying reports, a copy of which should be filed with the original reports. Such general statements as "standard tables for \_\_\_\_\_ Area" should be avoided. In the case of large and important tracts, copies of the volume tables used will be filed with the original data.

All figures not appearing in the final report but which may be of use in the future should be put in good form and carefully labeled so that anyone can understand them. This will include stand per acre by species and products for each type, total stands by logging units and tracts, and the acreage upon which these are based.

The tally sheets, tabulation sheets and all other original data referring to the appraisal of the tract will be filed in the Area Office under the case designation, using the cheap wooden transfer cases such as are used for closed files. It will be satisfactory in the case of small tracts with only a few tally sheets to file these data in the regular report folders. The project record map should always be included with the original data.

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### Survey and Title Memorandum

In addition to the data called for in the outline report, a record should be made in the form of a separate memorandum for each large tract or group of small ones covering all available information that will be of assistance to the surveyor who will undertake the boundary surveys after purchase shall have been agreed upon. Any detailed information with regard to titles and lappages with especial reference to adverse claims will be especially useful. Give names and locate all squatters on the tract. Reference should also be made wherever practicable to the names and addresses of men who are familiar with lines and corners. The names of men who would make good chainmen might also be of value to the surveyor, and the location of desirable camp sites will be of assistance. Any other information which might be of value to the surveyor or title examiner should be included.

### Work Record

A work record should be kept by each party chief. Computing paper should be used for this purpose and the record should be made in the form of the attached dummy.

Every strip and set of survey notes should be given a reference number and each sheet numbered in colored pencil so that in case the strip or survey notes get mixed they may be sorted. Tally sheets should be numbered in a similar manner with the same number as the corresponding strip notes. A strip out, offset and

return should be considered one strip as far as the reference number is concerned, but the strips out and return should be recorded on separate lines. (See dummy.)

Under the heading "Crew" should be given the initials of the men.

Where more than one tract is being examined, the heading "Tract" will enable the time spent to be divided among the various projects.

"Beginning," "direction," and "end" columns give in a compact form for reference the essential points of strip and survey work. The length of strip should total as much as the separate amounts under the various types.

"Ties and Corners" facilitate reference to the correct set of notes when it is desired to determine how any particular corner was located.

The columns for work in man-days are filled in by carrying out the number of men in each crew to the proper column. By adding these columns data for the monthly report is obtained. The total man-days should correspond to the product of the number of men by the number of days each one was employed. The number of man-days on any one date should equal the total strength of the party on that day.

Other columns should be inserted to cover "Leave," "Preliminary examination," "Travel" (moving camp, . . . . .) "General supervision," which includes taking proposals, Lumbermen's

# WORK RECORD, NOVEMBER 1911 NANTAHALA PARTY

Date	Reference Number	Grew	Tract	Beginning	Direction	End	Length	TYPES				Offset	Ties and Corners	WORK IN MAN-DAYS						Computed	Plotted
								Open	Cove	Slope	Ridge			Base or Boundary	Strip	Office	Holidays	Lost	Miscellaneous		
1	1	WD-RH-Y.H.-G.W.	M.L.G.	Sta. A in Gap	Southerly	Sta. M.-Wayah							East line #2977								
1	2	B.H.S.-W.N.S.		Sta. A.	W.	Sta. A.W.	250	10	20	50	170		W.O. cor. #1090	4	2						
1		O.I.-W.H.			office								N.E. cor. #1440			2					
2	3	R.H.-B.H.S.		Sta. G.	W.	Sta. G.W.	75		10	20	45	South 20 ch.	Carson line								
				Sta. E.W.	E.	Sta. E.	100		8	22	70		Sass. cor. #13614		2						
2		W.D.-O.I.			Taper data														2		
2	4	V.H.-W.N.S.		Sta. G.	W.	Sta. G.W.	150	6	4	60	80	South 20 ch.	Stake cor. M <sup>c</sup> Guire		2						
2	5	W.H.-G.W.	M <sup>c</sup> Guire *C	Sta. I.	S45°E	East line, I.S.E.	100			30	70	S45°W. 20 ch.	N.E. cor. S.E. cor.								
				Sta. K.S.E.	N45°W	Sta. J.	95			20	75		Tie sta. J. see notes		2						
3	6	W.D.-V.H.-G.W.-B.S.	M.L.G.	Sta. M.	Southerly	Sta. V.			Base				B.O. cor. Parton	4							
3	7	W.H.-W.N.S.		Sta. L.	W.	Sta. L.W.	100		15	20	65	South 20 ch.	Cor. Rocky Bald								
				Sta. N.W.	E.	Sta. N.	125		10	45	70		Tie on B.O. cor. & Sta. M.		2						
3		R.H.-O.I.			Moving camp														2		
4		W.D.-B.S.-V.H.-O.I.			Office											4					
4	8	R.H.-W.S.	M <sup>c</sup> Guire D	Sta. P.	S45°W	Sta. P.W. on line	97	30	8	27	32	S45°E. 20 ch.	Tie on East line B.O. cor.								
				Sta. R.S.W.	N45°E	Sta. R. on road	92		19	8	65		Tie on Ch. O. cor.		2						
4	9	W.H.-G.W.	M.L.G.	Sta. S.	S45°W.		252	0	15	156	81	S45°E. 20 ch.			2						
5		Sunday															8				
6		Office - party - rain														8					

examinations," "Purchase," under which would come securing options and negotiations with owners, "Administration," etc.

"Computed" and "Plotted" columns are used for convenience in checking off the office work done.

For a small party of one or two crews, the above data can be more conveniently kept in diary form in an ordinary field notebook.

### Monthly Reports

At the end of each month a brief report should be submitted on the mimeographed form by each chief of party. This report should cover the following points:

1. A statement of the time of the party, including the chief, expressed in man-days under the appropriate heads given on the form.
2. Total area examined during month, etc.
3. The cost of the work for salaries, general expenses, and total, and the approximate average cost per horizontal acre. "Salaries" includes salaries of all examiners, field assistants, and compassmen. "General expenses" includes cost of temporary labor, cook's wages, supplies, equipment, transportation, and other miscellaneous items.
4. List of tracts examined since date of last report, giving the information in regard to each called for on the form.
5. A list of lap reports prepared.
6. Grant map work.
7. A general statement as to the status of the examination with particular reference to examinations yet to be made, length of time required in the locality or area, plans for the coming month, and suggestions. This may include, whenever appropriate, a discussion of the size of the crew, the efficiency of the men, the rate of progress of the work, needed changes in personnel, and any other information the chief of party may believe the Assistant Forester should have in regard to the progress of the work.

8. Lumberman's examination; time and cost.
9. Purchase work, under which would come securing options and negotiations with owners.
10. Administrative work, including all work of any kind whatsoever done under instructions for District 7.

#### Lumberman's Examination

The examination by the lumberman will, whenever practicable, be made at the same time as or preceding that of the technical party in order that he may decide as to what portion of the timber is merchantable and should be tallied as such.

The lumberman before beginning examinations in an area should examine some operation being carried on under the same conditions and as nearly as possible in order to ascertain the limit of merchantability under the imposed conditions. He should determine which species are merchantable; which are unmerchantable at the present time and what will be the profitable logging limit on high slopes and ridges.

The lumberman should submit with his report a map on the best base obtainable, usually the U. S. G. S. topographic sheet, the boundaries of the land examined, together with the following data:

(1) The routes followed by the lumberman in going over the tract. Each day's trip should be indicated by a fine line in red ink giving the date in small figures and showing the direction of travel by arrows.

(2) Mill sites, main logging railroad, haul roads and other existing or proposed improvements necessary in order to operate the tract. The standard Atlas legend should be followed.

(3) Logging units which should be recognized in estimating. Principal units should be outlined in solid red lines and subunits in broken red lines.

(4) The timbered portion of the tract should be outlined and subdivided into three classes. (a) Areas in which full utilization of saw timber of the principal species is possible. These should be indicated in contrast with the other classes by absence of color. (b) Areas in which the knotty top logs of the principal species can not be profitably removed. These should be indicated by coloring lightly in pale blue, Atlas crayon pencil #58. (c) Areas from which all the timber or certain important species can not be profitably removed under present market conditions. This should be indicated by coloring a light olive green, Atlas crayon pencil #15. Volume tables to be used should be specified, and in case of any doubt this subject should at once be taken up by the lumberman with the Office.

In case the last two classes of timber are distributed along certain ridges not accurately defined on the base map, they should be located approximately and described in an attached statement so that the technical party can locate them definitely. A rough copy of the map and the carbon of the attached explanatory statement should be filed in the Area office, and the chief of

party so advised by the lumberman through the Area office, a copy of his letter being transmitted to Washington.

#### Outline for Report on Lumberman's Examination

The following outline covers the subjects to be reported upon by the lumberman in appraising stumpage.

(1) Cost of operation per 1,000 board feet.

Accessibility of tract.

Influence of adjacent holdings on cost of development.

Detailed logging and milling costs by operating units.

Estimate of improvements necessary to log and mill.

Carrying cost of investment to operate unit, proportioned for each tract.

Total cost of investment necessary to operate each unit proportioned for each tract.

Cost of producing lumber and minor products per unit, including logging, transportation, sawing, overhead charges, selling and other costs.

Operator's profit

(2) Sale value of products

(Approximate percentage of grades of lumber and timber obtainable from each species, and price per M of mill run at shipping point on that portion of the stand which is tallied as being merchantable.)

Saw timber

Percentage of grades and price of grades



Spécial uses for timber and markets.

Current local stumpage values.

Minor products.

(3) Relative stumpage value of the classes of material by logging units.

(4) Summary tables (If estimate data is available - showing stand and value by logging units and for entire tract.)

(5) Recommendations.

#### Outline for Preliminary Examinations

In order to determine the advisability of securing a proposal on any tract and to have a definite basis for planning the necessary field examination, the following points should be covered in the preliminary examination.

##### (1) Location and Area

County, State, nearest railroad town, main watershed.

Give accurate boundary description and submit outline map of tract if possible.

##### (2) Ownership

All facts as to ownership. Names and addresses of principal owners, squatters, conflicting claims, etc., reputation of the title. What land is owned in fee and what held under tax title, contract, option, etc. How long has present owner owned the lands? How did he obtain them and what price or prices did he pay? Assessed valuation. Copies of contracts covering outstanding mineral, timber, or other rights or easements.

#### (3) Description of Tract

Approximate area of virgin, culled, and cut-over forest land, of fields in cultivation, grass or restocking, of land with timber reserved.

History and character of forest -- watershed or town water supply protection -- quality of stand -- estimates available, and probable amount of timber by most important species.

Agricultural, mineral and water power possibilities.

#### (4) Probable Value

Best method of marketing timber and probable stumpage values.

Value of land and all other elements which can be considered.

Summary of probable value on basis of best timber estimate available.

#### (5) Recommendations

Price at which proposal should be accepted and detailed examination made.

Special clauses which should be included in proposal or option.

Size of party, estimated time and cost of examination.

Boarding places, camp sites, local supply of teams and labor, and other information of use to examination party.

#### Purchase Negotiations and Procedure

##### Proposals

Where proposals are solicited by representatives of the Forest Service or obtained through personal conference with owners

at Area office, they should be obtained at prices as close as possible to the probable value of the properties.

Proposals submitted by field men or Area chiefs to the Washington office should be annotated at the bottom of the first page "Copy retained" if a copy has been kept for the Area files and "Examined" if the tract has been examined. The tract number should always be placed on such proposals, and it is desirable that a sketch map showing location of tract be transmitted with the proposal in order that it may be placed on the Area map.

Prospective vendors should be given no definite promises as to the length of time required to consummate a sale. However, an effort will be made in all cases to complete survey and title examination with report recommending direct purchase or condemnation within eight months from date of approval for purchase by the Commission. The term reservations in the proposal refers to easements; land which is not sold should be referred to as eliminated or retained.

#### Price Agreement

Negotiations with resident owners looking toward price agreement should be handled through conference rather than by mail whenever possible. In this way the owner obtains no written statement of the price which the Forest Service is willing to recommend, which could be used to obtain a better offer from other prospective purchasers.

When owners desire to reserve undeveloped minerals, they should be asked to accept a limitation of usually 25 years, at the end of which all mineral rights revert to the Government unless commercial development has been commenced, in which case these rights shall remain in the vendor as long as exploitation continues. The Commission does not ordinarily approve unlimited reservation of undeveloped minerals.

If rights of way over retained lands or other concessions are needed for good administration, they should be stipulated for in conducting the negotiations for price agreement.

#### Options

Ordinarily options will be made out in the Washington office. When they are made out in the Area office or field, care should be taken to fill out the blanks correctly, to make the price and description accurate, and to secure proper execution. If they are paid for in the field this should be noted on the face of the option and subvouchers should be taken.

#### Eliminations from Offered Lands

Eliminations which are not defined by metes and bounds, but which are located by the owner or his representative on the ground when the examination is made, should be indicated plainly on the type map. A copy of this map, which need not be colored, should be furnished the owner. The form to accompany reports (TE-1) provides for recording the name of the owner's representative who indicated the location of an elimination and assurance

that the owner is furnished with a plat of the tract as examined. Since the surveyor will use a duplicate of the same map, disputes in regard to the location of eliminations will be avoided.

#### Eliminations after Approval

Many cases arise where it is necessary to consider the elimination of portions of tracts which have been approved for purchase. The eliminations fall into two classes, (a) lands that are proposed to be withdrawn by the vendor after the purchase agreement is signed, which will be designated as withdrawals, and (b) lands that are affected by adverse claims, which will be designated as laps. .

The surveyor should not eliminate any land falling in these two classes but should include all land covered by the purchase agreement unless he is otherwise instructed, because the tracts have been offered as solid boundaries and the value placed on them by the Forest Service and the Commission is influenced in part because of that fact.

Any withdrawal the owner desires to make or any lappage discovered should at once be reported by the surveyor to the officer in charge of the Area, who will investigate the case. If it is a lappage the Area Chief will confer with the title attorney in order to secure correct information in regard to the title status of the land and in order to be sure that the title attorney is informed in regard to the physical condition of the property.

In order that a definite policy may be established and a uniform procedure followed in such cases, the methods here outlined for handling them should be employed.

Withdrawals.--Should the vendor for any reason desire to withdraw a piece of land that is covered by an option or purchase agreement, the officer in charge of the Area should investigate the case and prepare a report in duplicate, following the outline here given. The original should be sent to this office, and the carbon should be filed in the Area Office.

The report should have the proper case designation and be headed with the number or name of the tract which embraces the proposed withdrawal and a suitable designation for the withdrawal. This should be followed by a discussion of the case under the following headings:

(a) Location. If it is not shown on any map, an accurate description of its location should be written or a sketch of its location should be made.

(b) Acreage.

(c) Land and timber examination. State whether the proposed withdrawal was included in the timber and land examination of the tract.

(d) Character of land. Give value of land and timber and improvements on it. These and the grazing value should be considered and compared with the value of the remainder of the tract.

(e) Administrative value. Its value as a ranger station or sawmill site, pasture, special use, right of way, and location with reference to other acquired lands should be discussed.

(f) Reasons why owner desires to withdraw the land.

(g) State whether proposed withdrawal has been surveyed.

(h) Any other information not called for but which has influence on the case should be given.

(i) Recommendations as to what action should be taken.

Laps.\*--A report in triplicate should be prepared by the officer in charge of the Area, following the outline given here. The original should be sent to this office, the first carbon to the title attorney, and the second carbon should be filed in the Area Office. It should have the proper case designation and be headed with the number or name of the tract affected by the lap, and the name of the person who claims the lap. This should be followed by a discussion of the case under the following headings:

(a) Location. If it is not shown on any map an accurate description of its location should be written or a sketch of its location should be made.

(b) Acreage.

(c) Land and timber examination. State whether lap was included in the timber and land examination. If more than one of

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\*For the procedure in regard to laps that are found in connection with the appraisal examination, see page 50.

tracts affected is covered by a purchase agreement, state in which of the lap was included in making the examination.

(d) Character of land. Give value of land, timber and improvements. These and the grazing value should be considered and compared with the value of the remainder of the tract.

(e) Administrative value. Its value as a ranger station or sawmill site, pasture, special use, right of way, and location with reference to other acquired lands should be discussed.

(f) History of conflicting claim. As much as can be learned from investigation of the status of the conflict should be given, presenting if possible the claim of each contestant under his name. State whether all known facts were reported to title attorney. Request report of him as to which of the claimants has the superior title, and embody it with this report if possible.

(g) Possibility of acquiring lap. State whether the adverse claimant will offer the land himself or whether he will agree to condemnation.

(h) State whether lap has been surveyed.

(i) Any other information not called for but which has an influence on the case should be given.

(j) Recommendations. In your opinion, what action should be taken.

An explanation of the procedure that will be followed on the basis of the replies to paragraph "g" under "Laps" seems advisable. (1) In case the adverse claimant is found to have the



superior title to the lap and it is desirable to acquire it an attempt should be made to secure an option from him at a price not to exceed the value of the lap. If the holder of the superior title is not willing to dispose of the land by sale or condemnation it will generally be best to recommend that the lap be not acquired. (2) If the records show that the best title to the lap is in the parties originally offering the land, then as a general rule the land will be acquired by condemnation if necessary, even though the adverse claimant objects.

If it is necessary to take immediate action on any proposed withdrawal or lap to prevent a large added expense which might be incurred by returning a survey party at some later time to cut it out, the officer in charge of the Area should instruct the surveyor to at once locate it by an accurate survey.

#### Range of Requirements of Timber Examiners

Timber appraisers may be called upon for the following classes of work:

(1) Reconnaissance for locating areas; changes in boundary of areas; preparation of ownership and status maps and lists.

(2) Volume cruise, to be accompanied by reports and maps, in connection with which may be topographic mapping, and stumpage appraisal.

(3) In many cases an area under administration appraisal work may lead to timber sale work or may be carried on in alternation with it.

- (4) Securing proposals.
- (5) Price negotiations with owners.
- (6) Securing options.
- (7) Preparation of grant maps.

Appraisal Forms and Tables

Obtainable on requisition:

Check estimate reports	- Form	1001-B
Options	- "	1009
Proposals	- "	1000
Record cards	- "	1011
Tally sheets (Few columns)		1001
" " (Many " )		1001A
Notices for posting that Government is purchasing land		1003

Obtainable on application to Assistant Forester:

Form to accompany reports TE - 1

Regulations for cutting reserved timber (general)

" " mining reserved minerals

Report on Examination (monthly)

Stand per acre table

Summary sheet (Neg. #2243)

Volume tables

### Change of Address

Proposed changes in address should be promptly reported through chief of party or Area office; and chief of party should promptly report all arrivals through the Area office.

### Transmitting Maps, etc.

In transmitting maps, reports, forms, etc., whether accompanied by a letter or not, it is desirable to place on them the area designation, either on a slip clipped on or written on the back, if not on the legend or the face.

### Use of File Captions

The following is a list of the letter captions most frequently used in appraisals, with brief explanations which may facilitate their correct use. When in doubt about the designation for a letter, please refer to this list. Captions that are marked (\*) are merely folders, not subguides of filing scheme.

	Assistant Forester	Area Offices
<u>Logging costs</u> (All such data except on specific tracts on Areas.)	A Logging Costs	A Logging Costs
<u>Price data</u> (Folder only) (Correspondence relative to sale of land and timber by private owners in or near Purchase Areas; general stumpage prices of products covering entire Areas or parts of Areas but which do not apply to specific tracts on Areas and which are not secured in connection with reports on such.)	A Price Data Potomac	A Price Data Potomac

If the data is not secured on an Area.

Volume tables (Correspondence relating to supplying volume and grade tables to be used on Acquisition work.

Correspondence relating to the preparation of volume and grade tables to be used on Acquisition work.

Potomac (Correspondence relating to the establishment of the Area, the ownership map or list of owners, and changes in the Area boundary, i.e., reconnaissance.)

Examination (All correspondence relative to the examination and appraisal of tracts offered for purchase carried on between the Area and the Washington Office. Letters transmitting examination reports, photographs, etc., relating to individual tracts.)

Monthly reports (Folder only) (Correspondence under this caption should be restricted to the transmittal of monthly reports)

Purchase (Correspondence with owners before a proposal is made, or correspondence covering negotiations respecting several individual cases within an Area.

Correspondence with owners relative to offering lands or negotiations with them, or correspondence between the Area and office relative to proposals or to price after examination has been made.

Assistant  
Forester

A  
Price Data

A  
Volume Tables

A  
Volume Tables  
Mensuration

A  
Potomac

A  
Potomac  
Examination

A  
Potomac  
Examination  
Monthly Reports

A  
Potomac  
Purchase

A  
Potomac  
Purchase  
Jones, J. H.

Area  
Offices

A  
Price Data

A  
Volume Tables

A  
Volume Tables  
Mensuration

A  
Potomac

A  
Potomac  
Examination

A\*  
Potomac  
Examination  
Monthly Re-  
ports

A  
Potomac  
Purchase

A\*  
Potomac  
Purchase  
Jones, J. H.

	Assistant Forester	Area Offices
Correspondence relative to the personnel of field parties which does not have to do with the examination of special tracts or is not sufficiently individual to be in a personnel or assignment folder and which relates to the general work on an Area)	A Potomac Supervision	A Potomac Supervision
<u>Supervision</u> (General supervisory correspondence relating to all or a number of Areas)	A Supervision	A Supervision
It is desirable to place under this caption not only instructions to individuals relative to work as individuals and assignments which would not go in a personnel or examination folder but correspondence with Washington Office about items of accounts relating to individual allotments, transportation requests, etc.	A Supervision Assignment Jones, J. H.	A Supervision Assignment
Correspondence relating to supplies and nonexpendable property for examination and survey work.	A Supervision Supplies	A Supervision Supplies
Correspondence relating to property accounts in cases where there is custodian or responsible officer on an Area.	A Supervision Supplies Brooks, E.H.	A* Supervision Supplies Brooks, E.H.
Field and office procedure which is not segregated in one of the following special folders.	A Supervision Procedure	A* Supervision Procedure
Correspondence relating to forms for filing and office use.	A Supervision Procedure Office Forms	A* Supervision Procedure Office Forms

Correspondence relating to the procedure in locating purchase areas; in extending them, or making eliminations; locating boundaries; and ownership, and status maps (but not relating to such work on a specific Area.)

Correspondence about forms and tables applicable to all field uses except tally sheets and volume tables.

Correspondence relating to the form and use of tally sheet form and the check estimate form, but the monthly check estimates go under A-Special, Check Estimates.

Correspondence relating to all field procedure except estimating and appraisals. This would include such instructions as those relative to reporting, changing address, and general instructions of all kinds.

Correspondence relating to the form of maps and reports.

Correspondence relating to procedure to be followed in estimating and valuation, and in regard to the "Manual of Instructions."

# Assistant Forester

A  
Supervision  
Procedure  
Reconnaissance

A  
Supervision  
Procedure  
Field Forms  
& Tables

A  
Supervision  
Procedure  
Tally Sheets

A  
Supervision  
Procedure  
Field Methods

A  
Supervision  
Procedure  
Maps & Reports

A  
Supervision  
Procedure Timber appraisals

# Area Offices

A\*  
Supervision  
Procedure  
(Reconnaissance)

A\*  
Supervision  
Procedure  
Field Forms  
& Tables

A\*  
Supervision  
Procedure  
Tally Sheets

A\*  
Supervision  
Procedure  
Field Methods

A\*  
Supervision  
Procedure  
Maps & Reports

A\*  
Supervision  
Procedure  
Timber appraisals

## Submission of Accounts

The following is a list indicating common errors of omission in accounts. It is suggested that when an account is ready for submission, entries be checked for correction of such omissions as would result in its return for correction, as follows:

Form 24a.

Proper distribution of expenses on foregoing forms.

Addresses of payees (payroll).

Definite dates of service for broken periods (payroll).

Period of service in 31 day month, 1 to 31, not 1 to 30 (payroll).

Per annum and per month computation for 30 days, not 31 (payroll).

Permanent appointees grouped in alphabetical order, each grade (payroll).

Temporary employees grouped in alphabetical order (payroll).

Signatures to certificates.

Signature of payee (subvouchers).

Exigency statement, or accepted and rejected bids, \$50 or over (Form 5a)

Definite designation of employees (such as Roadmaker, Trail-builder, Woodchopper, etc., the title of Laborer being insufficient.)

Sunday certificate (temporary services).

Mileage certificate, by owner of automobile or motorcycle (expense accounts).

Meals and lodging) In expense accounts, only, and when not in Laundry ) per diem status.

Livery: name of payee and points in expense account if paid on Form 5a.

First and last subsistence expense )	In expense accounts,
Day and hour of arrival and departure )	only, and if in per
from camp or official station) )	diem status.

Indication in accounts, by items or groups of items, of title of appropriations chargeable.

Full itemization of each purchase.

Name of official station (expense accounts).

To be sworn to (expense accounts).

Report of travel on transportation requests exchanged for tickets or mileage books (expense accounts-on back).

Statement of Mileage (expense accounts).

Manner of travel between points (expense accounts).

Initials of railroads traveled, cash fares (expense accounts).

Kind of berth occupied (expense accounts).

Subvouchers where required (expense accounts).

Whereabouts at close of previous month (expense accounts). See Par. 89 (d) Fiscal Regulations.

Letter making suspensions when items are resubmitted (expense accounts).

Certificate of change in total amount (expense accounts).

Certificate by payee of changed amounts.

Points and day and hour of taking and ending leave (expense accounts).

Form 959 for all property purchased (expense accounts).

Memorandum copy of Form 5a, showing name and address.

Number and date of Letter of Authorization.



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A P P E N D I X

# COST OF HAULING LUMBER PER M BOARD FEET

Number of trips per day	Team cost per day (Dollars)	Average load in board feet										
		500	600	700	800	900	1000	1100	1200	1300	1400	1500
1/2	\$3.00	\$12.00	\$10.00	\$8.57	\$7.50	\$6.67	\$6.00	\$5.45	\$5.00	\$4.62	\$4.29	\$4.00
	3.50	14.00	11.67	10.00	8.75	7.78	7.00	6.36	5.83	5.38	5.00	4.67
	4.00	16.00	13.33	11.43	10.00	8.89	8.00	7.27	6.67	6.15	5.71	5.33
3/4	3.00	8.00	6.67	5.71	5.00	4.44	4.00	3.64	3.33	3.08	2.86	2.67
	3.50	9.33	7.78	6.67	5.83	5.19	4.67	4.24	3.89	3.59	3.33	3.11
	4.00	10.67	8.89	7.62	6.67	5.93	5.33	4.85	4.44	4.10	3.81	3.56
1	3.00	6.00	5.00	4.29	3.75	3.33	3.00	2.73	2.50	2.31	2.14	2.00
	3.50	7.00	5.83	5.00	4.38	3.89	3.50	3.18	2.92	2.69	2.50	2.33
	4.00	8.00	6.67	5.71	5.00	4.44	4.00	3.64	3.33	3.08	2.86	2.67
1-1/4	3.00	4.80	4.00	3.43	3.00	2.67	2.40	2.18	2.00	1.85	1.71	1.60
	3.50	5.60	4.67	4.00	3.50	3.11	2.80	2.55	2.33	2.15	2.00	1.87
	4.00	6.40	5.33	4.57	4.00	3.56	3.20	2.91	2.67	2.46	2.29	2.13
1-1/2	3.00	4.00	3.33	2.86	2.50	2.22	2.00	1.82	1.67	1.54	1.43	1.33
	3.50	4.67	3.89	3.33	2.92	2.59	2.33	2.12	1.94	1.79	1.67	1.56
	4.00	5.33	4.44	3.81	3.33	2.96	2.67	2.42	2.22	2.05	1.90	1.78
1-3/4	3.00	3.43	2.86	2.45	2.14	1.90	1.71	1.56	1.43	1.32	1.22	1.14
	3.50	4.00	3.33	2.86	2.50	2.22	2.00	1.82	1.67	1.54	1.43	1.33
	4.00	4.57	3.81	3.27	2.86	2.54	2.29	2.08	1.90	1.76	1.63	1.52
2	3.00	3.00	2.50	2.14	1.88	1.67	1.50	1.36	1.25	1.15	1.07	1.00
	3.50	3.50	2.92	2.50	2.19	1.94	1.75	1.59	1.46	1.35	1.25	1.17
	4.00	4.00	3.33	2.86	2.50	2.22	2.00	1.82	1.67	1.54	1.43	1.33
2-1/2	3.00	2.40	2.00	1.71	1.50	1.33	1.20	1.09	1.00	.92	.86	.80
	3.50	2.80	2.33	2.00	1.75	1.56	1.40	1.27	1.17	1.08	1.00	.93
	4.00	3.20	2.67	2.29	2.00	1.78	1.60	1.45	1.33	1.23	1.14	1.07
3	3.00	2.00	1.67	1.43	1.25	1.11	1.00	.91	.83	.77	.71	.67
	3.50	2.33	1.94	1.67	1.46	1.30	1.17	1.06	.97	.90	.83	.78
	4.00	2.67	2.22	1.90	1.67	1.48	1.33	1.21	1.11	1.03	.95	.89

# COST OF HAULING WOOD, PER LONG CORD (160 CUBIC FEET)

Number of trips per day	Team cost per day Dollars	Average load in cubic feet of stacked wood.												
		70	75	80	85	90	95	100	105	110	115	120	125	130
1	\$3.00	\$6.86	\$6.40	\$6.00	\$5.65	\$5.33	\$5.05	\$4.80	\$4.57	\$4.36	\$4.17	\$4.00	\$3.84	\$3.69
	3.50	8.00	7.47	7.00	6.59	6.22	5.89	5.60	5.33	5.09	4.87	4.67	4.48	4.31
	4.00	9.14	8.53	8.00	7.53	7.11	6.74	6.40	6.10	5.82	5.57	5.33	5.12	4.92
1½	3.00	4.57	4.27	4.00	3.76	3.56	3.37	3.20	3.05	2.91	2.78	2.67	2.56	2.46
	3.50	5.33	4.98	4.67	4.39	4.15	3.93	3.73	3.56	3.39	3.25	3.11	2.99	2.87
	4.00	6.10	5.69	5.33	5.02	4.74	4.49	4.27	4.06	3.88	3.71	3.56	3.41	3.28
2	3.00	3.43	3.20	3.00	2.82	2.67	2.53	2.40	2.29	2.18	2.09	2.00	1.92	1.85
	3.50	4.00	3.73	3.50	3.29	3.11	2.95	2.80	2.67	2.55	2.43	2.33	2.24	2.15
	4.00	4.57	4.27	4.00	3.76	3.56	3.37	3.20	3.05	2.91	2.78	2.67	2.56	2.46
2½	3.00	2.74	2.56	2.40	2.26	2.13	2.02	1.92	1.83	1.75	1.67	1.60	1.54	1.48
	3.50	3.20	2.99	2.80	2.64	2.49	2.36	2.24	2.13	2.04	1.95	1.87	1.79	1.72
	4.00	3.66	3.41	3.20	3.01	2.84	2.70	2.56	2.44	2.33	2.23	2.13	2.05	1.97
3	3.00	2.29	2.13	2.00	1.88	1.78	1.68	1.60	1.52	1.45	1.39	1.33	1.28	1.23
	3.50	2.67	2.49	2.33	2.20	2.07	1.96	1.87	1.78	1.70	1.62	1.56	1.49	1.44
	4.00	3.05	2.84	2.67	2.51	2.37	2.25	2.13	2.03	1.94	1.86	1.78	1.71	1.64
3½	3.00	1.96	1.83	1.71	1.61	1.52	1.44	1.37	1.31	1.25	1.19	1.14	1.10	1.06
	3.50	2.29	2.13	2.00	1.88	1.78	1.68	1.60	1.52	1.45	1.39	1.33	1.28	1.23
	4.00	2.61	2.44	2.29	2.15	2.03	1.92	1.83	1.74	1.66	1.59	1.52	1.46	1.41
4	3.00	1.72	1.66	1.50	1.41	1.33	1.26	1.20	1.14	1.09	1.04	1.00	0.96	0.92
	3.50	2.00	1.87	1.75	1.65	1.56	1.47	1.40	1.33	1.27	1.22	1.17	1.12	1.08
	4.00	2.29	2.13	2.00	1.88	1.78	1.68	1.60	1.52	1.45	1.39	1.33	1.28	1.23
4½	3.00	1.52	1.42	1.33	1.25	1.19	1.12	1.07	1.02	0.97	0.93	0.89	0.85	0.82
	3.50	1.78	1.66	1.56	1.46	1.38	1.31	1.24	1.19	1.13	1.08	1.04	1.00	0.96
	4.00	2.03	1.90	1.78	1.67	1.58	1.50	1.42	1.35	1.29	1.24	1.19	1.14	1.09
5	3.00	1.37	1.28	1.20	1.13	1.07	1.01	0.96	0.91	0.87	0.83	0.80	0.77	0.74
	3.50	1.60	1.49	1.40	1.32	1.24	1.18	1.12	1.07	1.02	0.97	0.93	0.90	0.86
	4.00	1.83	1.71	1.60	1.51	1.42	1.35	1.28	1.22	1.16	1.11	1.07	1.02	0.98
5½	3.00	1.25	1.16	1.09	1.03	0.97	0.92	0.87	0.83	0.79	0.76	0.73	0.70	0.67
	3.50	1.45	1.36	1.27	1.20	1.13	1.07	1.02	0.97	0.93	0.89	0.85	0.81	0.78
	4.00	1.66	1.55	1.45	1.37	1.29	1.22	1.16	1.11	1.06	1.01	0.97	0.93	0.90
6	3.00	1.14	1.07	1.00	0.94	0.89	0.84	0.80	0.76	0.73	0.70	0.67	0.64	0.62
	3.50	1.33	1.24	1.17	1.10	1.04	0.98	0.93	0.89	0.85	0.81	0.78	0.75	0.72
	4.00	1.52	1.42	1.33	1.23	1.19	1.12	1.07	1.02	0.97	0.93	0.89	0.85	0.82
6½	3.00	1.05	0.98	0.92	0.87	0.82	0.78	0.74	0.70	0.67	0.64	0.62	0.59	0.57
	3.50	1.23	1.15	1.08	1.01	0.96	0.91	0.86	0.82	0.78	0.75	0.72	0.69	0.66
	4.00	1.41	1.31	1.23	1.16	1.09	1.04	0.98	0.94	0.90	0.86	0.82	0.79	0.76
7	3.00	0.98	0.91	0.86	0.81	0.76	0.72	0.69	0.65	0.62	0.60	0.57	0.55	0.53
	3.50	1.14	1.07	1.00	0.94	0.89	0.84	0.80	0.76	0.73	0.70	0.67	0.64	0.62
	4.00	1.31	1.22	1.14	1.08	1.02	0.96	0.91	0.87	0.83	0.80	0.76	0.73	0.70

COST OF HAULING CROSS-TIES PER TIE

Number of trips per day	Team cost per day (Dollars)	Average load in number of ties											
		7	8	9	10	11	12	13	14	15	16	17	18
1/2	\$3.00	\$.857	\$.750	\$.667	\$.600	\$.545+	\$.500	\$.462	\$.429	\$.400	\$.375	\$.353	\$.333
	3.50	1.000	.875	.778	.700	.636	.583	.538	.500	.467	.438	.412	.389
	4.00	1.143	1.000	.889	.800	.727	.667	.615	.571	.533	.500	.471	.444
3/4	3.00	.571	.500	.444	.400	.364	.333	.308	.286	.267	.250	.235+	.222
	3.50	.667	.583	.519	.467	.424	.389	.359	.333	.311	.292	.275-	.259
	4.00	.762	.667	.593	.533	.485-	.444	.410	.381	.356	.333	.314	.296
1	3.00	.429	.375	.333	.300	.273	.250	.231	.214	.200	.188	.176	.167
	3.50	.500	.438	.389	.350	.318	.292	.269	.250	.233	.219	.206	.194
	4.00	.571	.500	.444	.400	.364	.333	.308	.286	.267	.250	.235+	.222
1-1/2	3.00	.286	.250	.222	.200	.182	.167	.154	.143	.133	.125	.118	.111
	3.50	.333	.292	.259	.233	.212	.194	.179	.167	.156	.146	.137	.130
	4.00	.381	.333	.296	.267	.242	.222	.205+	.190	.178	.167	.157	.148
2	3.00	.214	.188	.167	.150	.136	.125	.115+	.107	.100	.094	.088	.083
	3.50	.250	.219	.194	.175	.159	.146	.135-	.125	.117	.109	.103	.097
	4.00	.286	.250	.222	.200	.182	.167	.154	.143	.133	.125	.118	.111
2-1/2	3.00	.171	.150	.133	.120	.109	.100	.092	.086	.080	.075	.071	.067
	3.50	.200	.175	.156	.140	.127	.117	.108	.100	.093	.088	.082	.078
	4.00	.229	.200	.178	.160	.145	.133	.123	.114	.107	.100	.094	.089
3	3.00	.143	.125	.111	.100	.091	.083	.077	.071	.067	.062	.059	.056
	3.50	.167	.146	.130	.117	.106	.097	.090	.083	.078	.073	.069	.065-
	4.00	.190	.167	.148	.133	.121	.111	.103	.095+	.089	.083	.078	.074
3-1/2	3.00	.122	.107	.095+	.086	.078	.071	.066	.061	.057	.054	.050	.048
	3.50	.143	.125	.111	.100	.091	.083	.077	.071	.067	.062	.059	.056
	4.00	.163	.143	.127	.114	.104	.095-	.088	.082	.076	.071	.067	.063
4	3.00	.107	.094	.083	.075	.068	.062	.058	.054	.050	.047	.044	.042
	3.50	.125	.109	.097	.088	.080	.073	.067	.062	.058	.055-	.051	.049
	4.00	.143	.125	.111	.100	.091	.083	.077	.071	.067	.062	.059	.056
4-1/2	3.00	.095	.083	.074	.067	.061	.056	.051	.048	.044	.042	.039	.037
	3.50	.111	.097	.086	.078	.071	.065-	.060	.056	.052	.049	.046	.043
	4.00	.127	.111	.099	.089	.081	.074	.068	.063	.059	.056	.052	.049
5	3.00	.086	.075	.067	.060	.055-	.050	.046	.043	.040	.038	.035+	.033
	3.50	.100	.088	.078	.070	.064	.058	.054	.050	.047	.044	.041	.039
	4.00	.114	.100	.089	.080	.073	.067	.062	.057	.053	.050	.047	.044
5-1/2	3.00	.078	.068	.061	.055	.050	.045+	.042	.039	.036	.034	.032	.030
	3.50	.091	.080	.071	.064	.058	.053	.049	.045+	.042	.040	.037	.035+
	4.00	.104	.091	.081	.073	.066	.061	.056	.052	.048	.045+	.043	.040
6	3.00	.071	.062	.056	.050	.045+	.042	.038	.036	.033	.031	.029	.028
	3.50	.083	.073	.065	.058	.053	.049	.045-	.042	.039	.036	.034	.032
	4.00	.095	.083	.074	.067	.061	.056	.051	.048	.044	.042	.039	.037
6-1/2	3.00	.066	.058	.051	.046	.042	.038	.036	.033	.031	.029	.027	.026
	3.50	.077	.067	.060	.054	.049	.045-	.041	.038	.036	.034	.032	.030
	4.00	.088	.077	.068	.062	.056	.051	.047	.044	.041	.038	.036	.034
7	3.00	.061	.054	.048	.043	.039	.036	.033	.031	.029	.027	.025+	.024
	3.50	.071	.062	.056	.050	.045+	.042	.038	.036	.033	.031	.029	.028
	4.00	.082	.071	.063	.057	.052	.048	.044	.041	.038	.036	.034	.032

This table can be used for poles or other piece timbers



## FORM TO ACCOMPANY TIMBER EXAMINATION REPORTS

Name of Area\_\_\_\_\_

Name and number of tract\_\_\_\_\_

Proposal area\_\_\_\_\_

Planimetered area as examined\_\_\_\_\_

Area in report\_\_\_\_\_ acres.

Author of report\_\_\_\_\_

Boundary of tract shown

by \_\_\_\_\_  
(owner or his representative)to \_\_\_\_\_  
(Government representative)

Base line and boundary of tract marked by\_\_\_\_\_

Area to be eliminated shown by\_\_\_\_\_

\*Boundary map of area examined furnished to owner by

\_\_\_\_\_. Date\_\_\_\_\_

Estimate made by \_\_\_\_\_

Per cent of estimate: Cove\_\_\_\_\_ ; lower slope\_\_\_\_\_ ;  
upper slope\_\_\_\_\_ ; ridge\_\_\_\_\_.

Volume tables used\_\_\_\_\_

Stumpage values fixed by\_\_\_\_\_

\*In case of overlaps or eliminations, two boundary maps of the examined lands must be prepared, one for the owner and one to be sent to this office.

## REPORT ON EXAMINATION

.....Area      Month of.....19..  
 (Use separate sheet for general statement and signature)

### Record of Time in Man-Days (including lumberman)

Base line and boundary.....days	Leave.....days
Strip survey.....days	Preliminary examination.....days
Office work.....days	Travel (moving camp, etc.)..days
Sundays and holidays.....days	General supervision*.....days
Lap Examination & reports..days	Administrative work.....days

Total.....Man-days Timber Examination  
 Total.....Man-days Lap Work  
 Total.....Man-days Administrative Work

Total area examined during month.....acres  
 Area examined per man-day.....acres  
 Number days spent by party chief with crews.....  
 Number days spent by lumberman with crews.....

### Cost of Examination

General expenses	\$	Total cost	\$
Salaries	\$	Cost per acre.....	cents

### Tracts Examined

No. of Owner tract	Proposal Date	Acres Acres	Acres under exam.	Acres exam. (month)	Per cent exam. to date	Cost per acre	Total cost of tract	Status Map Report
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### Lap Reports

Names of Owners and Area of Chief Tracts to be Examined Next Month

Lap or other work to be done Next Month

\*Includes securing proposals, and options.

CHAINS { FOREST \_\_\_\_\_  
OPEN \_\_\_\_\_

DATE \_\_\_\_\_

### METHOD OF MEASURING DIAMETERS

[illegible]

\*1 log in a 2 or 3 log tree.      †2 logs in a 3 or 4 log tree.

## OFFSETS

## DATE \_\_\_\_\_

[illegible]



Forest types .....

Age classes .....

Condition of timber .....

Thrifty ..... per cent.

Mature ..... per cent.

Decadent ..... per cent.

Fire killed ..... per cent; damaged, ..... per cent.

Insect killed ..... per cent; damaged, ..... per cent.

Other killed ..... per cent; damaged, ..... per cent.

Name of disease .....

Species affected .....

Quality of timber (give by log grade; percentage of tall, medium or short clear boles; or number of clear logs of stated minimum length and diameter):

Logging factors:

Undergrowth; light-medium-dense, .....

Windfall; light-medium-dense, .....

Boulders and broken rock; numerous; occasional; absent, .....

Other factors, .....

Replacement:	Species.	Per cent.
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No replacement, .....		
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Ground one-third stocked, .....		
---------------------------------	--	--

Ground two-thirds stocked, .....		
----------------------------------	--	--

Ground fully stocked, .....		
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Additional Notes:

U. S. Department of Agriculture  
FOREST SERVICE

# PROPOSAL FOR SALE OF LAND

NOTE.—**Read carefully.**—In making purchases of lands under the Weeks law (36 Stat., 961), the Secretary of Agriculture desires to deal directly with owners wherever practicable, regardless of the size of the tract. Optioned lands will not be considered. In most cases agents can give no practical assistance. Lands chiefly valuable for agricultural purposes are not desired and should, so far as possible, be eliminated from proposals. Lands will be purchased only on the basis of an accurate survey by horizontal measurement, and at a specified rate per acre. A proposal on the basis of a lump-sum price for the tract can not be considered. In general, it is desired to make purchases of lands free of reservations. However, under some circumstances, purchases may be made subject to the reservation by the owner of the timber or minerals, under rules and regulations to be agreed upon at the time of the sale.

(City or Town)

$$(\text{Stat}^{\epsilon})$$

(Street)

\_\_\_\_\_, 191  
(Date)

*The Forester.*

*Forest Service,*

*U. S. Department of Agriculture,  
Washington, D. C.*

DEAR SIR:

(I or we)

(Name)

(If corporation, "A corporation organized and existing under the laws of the State of \_\_\_\_\_, having an office and principal place of business at \_\_\_\_\_")

of

State of....., hereby propose to sell to the United States all that certain tract or parcel of land situate, lying, and being on the watershed of.....

(Name minor watersheds—creeks)

tributar..... of  
(y or ies)

(Name of principal watershed—river)

in the Township of

, in

County and State

of \_\_\_\_\_, and  $\left\{ \begin{array}{l} \text{bounded} \\ \text{known} \end{array} \right\}$  and described as follows:

(Insert complete description by metes and bounds, grants, lot numbers, or other legal description. In case of small tracts, state also distance and direction

from nearest post office)





A map of this tract \_\_\_\_\_  
(Is inclosed, can not be supplied, will be forwarded within stated time, will be forwarded upon request, etc.)

This tract contains \_\_\_\_\_ acres, more or less, and consists approximately of the following classes of land:

(a) Merchantable forest \_\_\_\_\_ acres.

(b) Cut-over land \_\_\_\_\_ acres.

(c) Brush or burned land \_\_\_\_\_ acres.

(d) Abandoned farm land \_\_\_\_\_ acres.

(e) Agricultural land \_\_\_\_\_ acres.

Said land contains approximately \_\_\_\_\_ feet B. M. of merchantable timber of the following kinds: \_\_\_\_\_  
(Insert kinds in the order of their quantity)

At any time within six months from the date hereof, and thereafter until this proposal shall be withdrawn,

\*(a) \_\_\_\_\_ will sell said land, without reservations or incumbrances, to the United States,  
(I or we)  
for \$ \_\_\_\_\_ per acre.

(b) If the timber rights are reserved on \_\_\_\_\_ acres for \_\_\_\_\_ years from the date of sale, \_\_\_\_\_ will sell for \$ \_\_\_\_\_ per acre.  
(I or we)

(c) If the mineral rights are reserved on \_\_\_\_\_ acres, \_\_\_\_\_ will sell for \$ \_\_\_\_\_  
(I or we)  
per acre.

(d) If the timber rights on \_\_\_\_\_ acres are reserved for \_\_\_\_\_ years, and the mineral rights are reserved on \_\_\_\_\_ acres, \_\_\_\_\_ will sell for \$ \_\_\_\_\_ per acre.  
(I or we)

All reservations to be in accordance with such rules and regulations as may be agreed upon at the time of sale. The acreage to be determined by an accurate survey by horizontal measurement.

Said land is free and clear from incumbrances, excepting \_\_\_\_\_  
(If free and clear from incumbrances draw line through)

"excepting." If not, then insert brief statement of the nature of any and all incumbrances in effect on the date hereof. This should include all manner of

bargains, sales, gifts, grants, devises, dowers, rights and titles of dower, uses, taxes, liens, debts, judgments, executions, recognizances, and all other estates,

\* Fill in (a), (b), (c), or (d), as the circumstances may indicate.

rights, titles, charges, and incumbrances whatsoever. Especial note should be made of previous conveyances or reservations of timber or mineral rights, and the terms of such conveyances or reservations should be clearly stated)

The following statement is submitted with regard to condition of title, with especial reference to litigation, lappage, and possession: \_\_\_\_\_

On the date hereof \_\_\_\_\_ have, as \_\_\_\_\_, the right, full power, and lawful  
(I or we) (Owner, trustee, etc.)  
authority to grant, bargain, sell, and convey said land. \_\_\_\_\_ hereby grant to the officers of  
(I or we)  
the United States Government unrestricted right and privilege to examine as fully as they may see  
fit said land and the timber standing thereon, with a view to said purchase, during the period for  
which this offer is valid.

Very respectfully,

(Signature) \_\_\_\_\_

NOTE.—If the above offer is made by a corporation, form of signature should be:

X Y Z COMPANY,  
By JOHN DOE,  
President (or other  
officer or agent).

In case the owner is married, the name of the wife should be given on the following line to facilitate the drawing up of papers in case the land is to be recommended for purchase.

(Name of wife) \_\_\_\_\_

If a proposal is submitted through an agent or attorney in fact, the owner should also sign the proposal; if this is not done, the agent or attorney must submit as evidence of his authority to act either the original or a copy of the written authorization of the owner.



Date\_\_\_\_\_

Summary Sheet for Lands on ----- Area

[illegible]

**Form 1011**  
(Revised Dec., 1916)

Name of Area \_\_\_\_\_

Case Name  
of Owner \_\_\_\_\_

Address \_\_\_\_\_

Map  
No. \_\_\_\_\_

Agent or  
Attorney \_\_\_\_\_

Address \_\_\_\_\_

Owner's wife \_\_\_\_\_

Location  
of Land \_\_\_\_\_

Condition  
of Land \_\_\_\_\_

Average stand  
Saw timber \_\_\_\_\_

Reservation \_\_\_\_\_

Date of  
Proposal \_\_\_\_\_

Asked  
Price \_\_\_\_\_

Recmnd.  
Price \_\_\_\_\_

Approved  
Price \_\_\_\_\_

Preliminary  
Report: By \_\_\_\_\_

Date \_\_\_\_\_

Lumberman's  
Examination: By \_\_\_\_\_

Date \_\_\_\_\_

Area in  
Proposal \_\_\_\_\_

Area by  
Examination \_\_\_\_\_

Area by  
Survey \_\_\_\_\_

Technical  
Examination: By (and Party) \_\_\_\_\_

Date \_\_\_\_\_

Report  
Sent \_\_\_\_\_

Map  
Sent \_\_\_\_\_

Date: Option  
Signed \_\_\_\_\_

Approved \_\_\_\_\_

Agreement  
Executed \_\_\_\_\_

Survey  
Reported \_\_\_\_\_

Title  
Examined \_\_\_\_\_

Condemnation  
Requested \_\_\_\_\_

Judgment  
Taken \_\_\_\_\_

Title  
Vested in Fee \_\_\_\_\_

Outstanding  
Easements \_\_\_\_\_

Reservations  
Minerals and others \_\_\_\_\_

Reservations  
Timber (describe) \_\_\_\_\_

RULES AND REGULATIONS FOR THE CUTTING AND REMOVAL  
OF RESERVED TIMBER

The copy which follows gives general regulations which apply chiefly to protection. It is necessary that each case in which timber is to be reserved be considered separately so that the best rules for diameter limits, brush disposal, protection measures, etc., may be formulated to suit the requirements of each particular case. In order to do this the situation on the ground must be thoroughly gone over and the silvicultural needs of the case be considered as well as the requirements of the operator.

Since there are already on file in the Assistant Forester's office copies of rules and regulations used in several cases where conditions are widely different, it is suggested that the specific requirements of each case be made known to the Washington office before the rules and regulations for any case are actually formulated.

RULES AND REGULATIONS FOR THE CUTTING AND REMOVAL  
OF RESERVED TIMBER

1. No unnecessary damage shall be done to any small growth or to trees left standing either in cutting or in the location of millsites, railroads, logging roads, chutes, landings, or camps.

2. All trees will be utilized to as low a diameter at the top as possible so as to cause the least waste. Hemlock will be used to a minimum diameter of eight inches unless it is unmerchantable on account of defects.

3. All engines and locomotives not burning oil for fuel used in logging or hauling logs on this tract shall be equipped with spark arresters that are satisfactory to the forest officer in charge.

4. Trees of sizes smaller than the diameter limit specified may be cut in connection with regular logging operations and used for ties on the logging railroads operated under this agreement and for the construction and maintenance of telephone lines, roads, skidways, flumes, slides, and camp buildings, so far as round material may be necessary in connection with the economical conduct of logging operations. Such material shall so far as possible be secured from trees subject to injury in connection with logging or the construction of logging roads and railroads. No material under the

specified diameter limit shall be cut or removed for such purposes where unmerchantable material above said diameter limit is available and can be used.

Any material cut or removed except in accordance with these rules and regulations shall be paid for by the vendor at double its value where found, such valuation to be determined by the forest officer in charge.

5. If the owner of the reserved timber by reason of unavoidable disaster or circumstances over which it has no control, is unable to operate its sawmill for any period or periods of two months or more during the life of this agreement the date of expiration of the contract for cutting the reserved timber shall be extended by a period equal to the aggregate of such periods of enforced idleness, but in no case shall the period of extension cover more than two years.

All logging railroad bridges and logging road bridges built and used by the owner of the reserved timber shall become the property of the United States at the termination of the reserved timber rights. All camp buildings and other logging improvements which shall not be removed within one year from the expiration of the reserved timber rights shall then become the property of the United States.



7. While carrying on logging operations the owner of the reserved timber and all his employees, contractors, and their employees at work on the tract shall without any charge or expense to the United States do all in their power to prevent and suppress forest fires upon or threatening their logging operations or the lands upon which the standing timber reserved under this agreement remains uncut. The owner of the reserved timber shall place himself and all his employees at the disposal of the forest officer in charge for the purpose of fighting forest fires on the lands conveyed by him to the United States, with the understanding that if the fire does not threaten its logging operations or the timber owned by it, it shall be paid for the services so rendered at the rate or rates to be determined by the forest officer in charge, which rate or rates shall correspond to the rate or rates of pay prevailing in the locality for services of a similar character at the time the services are rendered, Provided, that if the owner of the reserved timber, his employees, contractors or their employees are responsible for the origin of the fire, then it shall not be paid for services so rendered.

8. The owner of the reserved timber shall clear and dispose of the brush and tops on a strip of land extending a distance of fifty feet on each side of all railroads, logging railroads, branches, spurs and switches owned and operated by him, so far as such lie within this tract, said work to be subject to the approval of the forest officer in charge.

DEPARTMENT OF AGRICULTURE

GENERAL RULES AND REGULATIONS FOR THE MINING AND REMOVAL OF MINERALS, TO BE INSERTED IN CONVEYANCES TO THE UNITED STATES OF LANDS PURCHASED UNDER THE ACT OF MARCH 1, 1911 (37 Stat., 961) WHEN MINERAL RIGHTS ARE RESERVED.

1. Anyone claiming the right to mine or search for minerals or mineral products in or upon lands acquired by the United States under the provisions of the Act of March 1, 1911 (Public No. 435) with a reservation of mineral rights to the grantor, must, on demand, exhibit to the Forest Officer in charge, satisfactory written evidence of right or authority derived from, through, or under the said grantor. Mining or searching for minerals except by those producing such evidence of right or authority is forbidden.

2. In carrying on mining operations and in searching for minerals only so much of the surface shall be occupied or disturbed as is reasonably necessary for the purpose.

3. In underground mining all reasonable and usual provision shall be made for the support of the surface, and to that end the tunnels, shafts, and other workings shall at all reasonable times be open to inspection and examination by the Forest Officers and mining experts or inspectors of the United States.

4. All miners or mining operators shall make provision to the satisfaction of the Forest officer in charge for preventing the obstruction, pollution, or deterioration of streams, lakes, ponds, or springs, by tailings, dumpage, or otherwise, or the escape of any harmful or deleterious material or substance from their mines or works.

5. In searching or excavating for minerals, in the dumping of ores or waste material, and in the location and construction of buildings or works of any kind to be used in connection with mining or searching for minerals or with the milling or reduction of ores, no timber, undergrowth or reproduction shall be unnecessarily cut, destroyed, or damaged. For all timber, undergrowth, and reproduction unnecessarily cut, destroyed, injured, or damaged, payment shall be made to the United States, on demand of the proper Forest officer, as follows:

For timber cut or destroyed at rates to be prescribed by the Forest officer in charge, which rates shall be the usual stumpage price charged in the locality in sales of National Forest timber of the same kind or species; for injury to timber, undergrowth, and reproduction, the amount of the actual damage as ascertained by the proper Forest officers according to the rules or principles of forestry applicable in such cases.

6. No timber shall be cut or used for or in connection with any mining use or purposes except with the permission of the proper officer first obtained and upon payment therefor at the price or prices fixed for timber of similar kinds.

7. Buildings, camps, roads, bridges and other structures or improvements necessary in carrying on mining operations shall be located as approved by the Forest officer in charge. When a building, camp or other structure is removed from one location to another, all debris resulting from such removal shall be burned or otherwise disposed of as directed by the Forest officer in charge.

8. All buildings, camps, and other structures shall be removed within six months after the completion of mining operations; otherwise they shall become the property of the United States.

9. All destructible refuse, waste material and other debris caused by the mining operations hereunder which interfere with the administration of the forest or endangers forest growth, shall within six months after the completion of said operations, be disposed of as directed by the Forest officer in charge.

10. While mining operations are in progress the mining operators and all employees, contractors, subcontractors, and employees of contractors and subcontractors at work on the

tract upon which said minerals are reserved, shall use due diligence in preventing and suppressing forest fires upon or threatening said tract, and shall be held rigidly responsible for any fires of which they are directly or indirectly the cause.

## LANDS ACQUIRED

Area .....

Card No. \_\_\_\_\_ F. Y. \_\_\_\_\_

[illegible]

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NOTE:

Page 99 - a form - is missing in this set